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New combinations in *Jacobaea* Mill. (Asteraceae – Senecioneae)

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This paper is dedicated to Bertil Nordenstam *on the occasion of his 70th birthday, February 20, 2006*

Abstract

New insights in the evolutionary relationships between the species of tribe Senecioneae show that at least 27 species currently assigned to *Senecio* sect. *Jacobaea* should be segregated from *Senecio* L. and are better placed in the genus *Jacobaea* Mill. In this paper, these species are listed and 19 new combinations in *Jacobaea* are published.

Introduction

The results of recent molecular systematic studies on tribe Senecioneae show that the species of *Senecio* sect. *Jacobaea* (Mill.) Dumort. form a well-supported clade (Pelser et al. 2002, 2003, 2004, unpubl.) that is only distantly related to other species usually attributed to *Senecio*, including *Senecio vulgaris* L., the type species of this genus (Knox & Palmer 1995, Kadereit & Jeffrey 1996, Bain & Golden 2000, Pelser et al. 2002). These results suggest that sect. *Jacobaea* is more closely related to *Packera* and several other mainly New World genera in Senecioneae. These findings are confirmed in preliminary phylogenetic analyses of nuclear and plastid DNA sequence data that are currently carried out as part of ongoing phylogenetic studies of the tribe focusing on the intergeneric relationships between its estimated 150 genera and the delimitation of *Senecio* (Pelser et al. unpubl.). We therefore propose to transfer the 27 species of sect. *Jacobaea* that have been identified using DNA sequence data from *Senecio* to *Jacobaea* Mill. Several new combinations to accommodate them in *Jacobaea* have recently been made elsewhere (Wiebe 2000, Pelser & van der Meijden 2005). The results of our phylogenetic analyses (Pelser et al. 2002, unpubl.), however, show that three species that were transferred by WIEBE (2000; *S. kirghisicus* DC., *S. nemorensis* L., and *S. sarracenicus* L.) are only distantly related to those of *Jacobaea*, and at present are better retained in *Senecio*.

In this paper, we list all species and a number of subspecific taxa for which analyses of DNA sequence data indicate that they should be considered members of *Jacobaea* and make new combinations where necessary. On basis of morphological similarities to these species, we believe that it is likely that other taxa currently assigned to *Senecio* are also better placed in *Jacobaea*. New combinations for these taxa will be made elsewhere (NORDENSTAM 2006).

When nearly finished with this report we accidentally discovered a publication by GANDOGER (1883) where 19 new species of presumably *Jacobaea* were described and at the time of writing were not listed in IPNI. The types probably are in LY, but we have not inspected them and invite a curious reader to sort this problem out. An isotype of *S. batavicus* GAND. (K. ANKERSMIT, *'Bassum' = ? Bussum*) was expected in L, where KOK ANKERSMIT's herbarium is deposited, but could not be found.

***Jacobaea* MILL.**, Gard. Dict. Abr. Ed. 4 (1754) [667]. – Lectotype: *Jacobaea vulgaris* GAERTN., designated here.

1. *Jacobaea abrotanifolia* (L.) MOENCH

Jacobaea abrotanifolia (L.) MOENCH, Methodus (1794) 587. – *Senecio abrotanifolius* L., Sp. Pl. (1753) 869. – *Herbichia abrotanifolia* (L.) ZAW. in GUILL., Arch. Bot. 1 (1832) 451, nom. superfl. – *Senecio herbichia* STEUD., Nomencl. Bot., ed. 2, 1 (1840) 750; 2 (1841) 557, 561 (sub *Herbichia carpatica* ZAW.).

Senecio carpathicus HERBICH, Addit. Fl. Galic. (1831) 43 (n.v.). – *Senecio abrotanifolius* subsp. *carpathicus* (HERBICH) NYMAN, Consp. Fl. Eur. (1879) 356. – *Senecio abrotanifolius* var. *carpathicus* (HERBICH) HAYEK, Repert. Spec. Nov. Regni Veg. Beih. 30, 2 (1931) 679 ('*carpaticus*').

Senecio monocephalus SCHUR, Verh. Siebenb. Ver. Naturw. 1 (1850) 107.

Senecio tiroliensis KERNER ex DALLA TORRE in SONKLAR et al., Anleit. Wiss. Beob. Alpenreisen 2 (ante Sep 1882) 247; in HARTINGER, Atlas Alpenfl. (1882) 133 ('i. sched.'); Europ. Alpenpfl. (1890) 325. – *Senecio abrotanifolius* var. *tiroliensis* (DALLA TORRE) KERNER ex HEGI, Illust. Fl. Mit.-Eur. 6, 2 (1914) 269. – *Senecio abrotanifolius* subsp. *tiroliensis* (DALLA TORRE) GAMS, Jahrb. Vereins Schutze Alpenpfl. Alpentiere 10 (1938) 22.

2. *Jacobaea adonidifolia* (LOISEL.) PELSER & VELDK., comb. nov.

Senecio adonidifolius LOISEL., Fl. Gall. 2 (Apr 1807) 566, nom. nov. pro *Senecio abrotanifolius* auct., non L. – *Senecio artemisiifolius* PERS., Syn. 2 (Sep 1807) 435, id., nom. superfl. ('*artemisiaefolius*').

3. *Jacobaea alpina* (L.) MOENCH

Jacobaea alpina (L.) MOENCH, Methodus (1794) 587. – *Solidago alpina* L., Sp. Pl. (1753) 880; HUDS., Fl. Angl. Ed. 2 (1778) 870 (not new). – *Cineraria alpina* (L.) L., Sp. Pl., ed. 2, 2 (1763) 1243, excl. var.; ALL., Fl. Pedem. 1 (1785) 203, t. 38, f. 2 (not new); WILLD., Sp. Pl. Ed. 4, 3, 3 (1803) 2084, isonym. – *Senecio alpinus* (L.) SCOP., Fl. Carn., ed. 2, 2 (1772) 164; L. f. Suppl. (1782) 371, isonym. – *Cineraria cordifolia* GOUAN, Ill. Observ. Bot. (1773) 69; JACQ., Fl. Austr. 2 (1774) 47, t. 176 (not new); L. f., Suppl. (1782) 375, (not new); nom. superfl. – *Senecio cordifolius* (GOUAN) CLAIRV., Man. Herb. (1811) 241, nom. superfl. (n.v.); LINK, Handb. (1829) 748, isonym; non L. f. (1782). – *Senecio cordatus* KOCH, Flora 17 (1834) 614, nom. superfl. – *Jacobaea cordata* OPIZ, Seznam (1852) 54, nom. superfl.

Senecio baldensis POIR., Encycl. Méth. 7 (1806) 109.

Note – This synonymy of *J. alpina* is probably incomplete; the infra-specific names have been omitted. Some names have been included, although not new, because they are often cited as if they were, or were encountered in the Index Kewensis.

4. *Jacobaea ambigua* (BIV.) PELSER & VELDK., comb. nov.

Cineraria ambigua BIV., Stirp. Rar. Sicilia 3 (1815) 5 – *Senecio ambiguus* (BIV.) DC., Prodr. 6 (1838) 356, excl. syn. *Cineraria bicolor* WILLD. (1803). – *Cineraria bicolor* subsp. *ambigua* (BIV.) NYMAN, Consp. Fl. Eur. (1879) 350. – *Senecio gibbosus* subsp. *ambiguus* (BIV.) ARCANG., Comp. Fl. Ital. (1882) 349.

Cineraria gibbosa GUSS., Cat. Pl. Hort. Reg. Boccadifalco (1821) 71. – *Senecio gibbosus* (GUSS.) DC., Prodr. 6 (1838) 355. – *Senecio ambiguus* subsp. *gibbosus* (GUSS.) CHATER, Bot. J. Linn. Soc. 68 (1974) 274.

Senecio taygeteus BOISS. & HELDR., Diagn. Pl. Orient. I, 6 (1846, '1845') 95. – *Cineraria nebrodensis* subsp. *taygetea* (BOISS. & HELDR.) NYMAN, Consp. Fl. Eur. (1879) 350. – *Senecio ambiguus* subsp. *taygeteus* (BOISS. & HELDR.) GREUTER, Willdenowia 33 (2003) 247.

5. *Jacobaea analoga* (DC.) VELDK., comb. nov.

Senecio analogus DC., Prodr. 6 (1838) 366. Selected over the next by NORDENSTAM [Fl. Iran. 164 (1989) 81].

Senecio spectabilis WALL. ex DC., Prodr. 6 (1838) 366. – *Senecio chrysanthemoides* var. *spectabilis* (WALL. ex DC.) HOOK. f., Fl. Brit. India 3 (1881) 339.

Senecio chrysanthemoides DC., Prodr. 6 (1838) 365, non SCHRANK, Baier. Fl. 2 (1789) 386.

Senecio sisymbriiformis DC., Prodr. 6 (1838) 366. – *Senecio chrysanthemoides* var. *sisymbriiformis* (DC.) Hook. f., Fl. Brit. India 3 (1881) 339. – *Senecio laetus* Edgew. var. *sisymbriiformis* (DC.) Aswal in Aswal & Mehrotra, Fl. Lahaul-Spiti (1994) 384, nom. inval., contra priorit.

Cineraria decipiens Spreng. ex DC., Prodr. 6 (1838) 366, cited as a synonym by the Index kewensis, is an invalid name, published as a synonym of *S. spectabilis*.

Senecio laetus Edgew., Trans. Linn. Soc. Bot. 20 (1846) 74.

6. *Jacobaea aquatica* (Hill) P. Gaertn., B. Mey. & Scherb.

Jacobaea aquatica (Hill) P. Gaertn., B. Mey. & Scherb., Oekon. Fl. Wetterau 3 (1802) 210. – *Senecio aquaticus* Hill, Veg. Syst. 2 (1761) 120; Huds., Fl. Angl. (1762) 317, isonym. – *Senecio jacobaea* var. *aquaticus* (Hill) Fiori & Bég., Fl. Ital. 3 (1903) 214, nom. superfl.

Senecio praealtus Bertol., Opusc. Sci. 3 (1819) 183 (n.v.).

6b. *Jacobaea aquatica* var. *erratica* (Bertol.) Pelser & Meijden

Jacobaea aquatica var. *erratica* (Bertol.) Pelser & Meijden, in Heukels, Fl. Nederl., ed. 23 (2005) 677.

Senecio erraticus Bertol., Rar. Ital. Pl. Dec. 3 (1810) 62. – *Senecio aquaticus* var. *erraticus* (Bertol.) Coss. in Germ. & Wedd., Introd. Fl. Anal. Paris (1842) 77. – *Senecio jacobaea* var. *erraticus* (Bertol.) Neilr., Fl. Wien (1846) 251; Paoli & Bég., Fl. Ital. 3 (1903) 214 (incl. subvar. *erraticus*); Icon. Fl. Ital. (1903) 412, isonym. – *Senecio aquaticus* subsp. *erraticus* (Bertol.) Tourlet, Cat. Pl. Vasc. Indre-et-Loire (1908) 273; V.A. Matthews, Fl. Turkey 5 (1950) 150, isonym. – *Senecio jacobaea* subsp. *erraticus* (Bertol.) Sudre, Fl. Toulous. (1907) 115 (n.v.); Rouy, Consp. Fl. France (1927) 143, isonym.

Senecio 'barbareae foliis' Krock., Fl. Siles. 2, 2 (1790) 421, nom. inval. – *Senecio aquaticus* [var.] α *barbaraeifolius* Wimm. & Grab., Fl. Siles. 3 (1829) 151, nom. inval. – *Senecio jacobaea* var. *barbaraeifolius* [Krock.] Fiori in Fiori & Paol., Fl. Ital. 3 (1903) 214; Icon. Fl. Ital. (1903) 412 ('*barbareaefolius*'). – *Senecio erraticus* subsp. *barbaraeifolius* [Wimm. & Grab.] Beger in Hegi, Ill. Fl. Mitt.-Eur. 6, 2 (1928) 778 ('*barbaraeaefolius*'). – *Senecio aquaticus* subsp. *barbaraeifolius* [Wimm. & Grab.] A. Pedersen, Bot. Tidsskr. 57 (1961) 173 ('*barbaraeifolius*'); Walters, Bot. J. Linn. Soc. 71 (1976, '1975') 273 (*'barbareifolius'*), isonym.

Senecio pratensis Klett & Richt., Fl. Leipzig (1830) 692 (n.v.), cited sub *Senecio barbareaifolius* Krock. ex Rchb., Fl. Germ. Excurs. (1832) 244 ('*barbareaefolius*'), nom. superfl.

7. *Jacobaea arnautorum* (Velen.) Pelser, comb. nov.

Senecio arnautorum Velen., Sitzungsber. Königl. Böhm. Ges. Wiss., Math.-Naturwiss. Cl. 1888 (1889) 45 – *Cineraria arnautorum* (Velen.) Nyman, Consp. Fl. Eur., Suppl. 2 (1889) 163. – *Senecio alpinus* subsp. *arnautorum* (Velen.) Hayek, Repert. Spec. Nov. Regni Veg. Beih. 30, 2 (1931) 680.

Senecio erubescens Pančić, Elem. Fl. Bulg. (1883) 41, non W.T. Aiton (1813). – *Senecio pancicii* Degen, Magyar Bot. Lapok 1 (1902) 92.

8. *Jacobaea auricula* (Bourg.) Pelser, comb. nov.

Senecio auricula Bourg. in Coss., Notes Pl. Crit. (1852) 169.

9. *Jacobaea boissieri* (DC.) Pelser, comb. nov.

Senecio boissieri DC., Prodr. 7 (1838) 300.

10. *Jacobaea cannabifolia* (Less.) E. Wiebe

Jacobaea cannabifolia (Less.) E. Wiebe, Turczaninowia 3 (2000) 62. – *Senecio cannabifolius* Less., Linnaea 6 (1831) 242.

11. *Jacobaea carniolica* (Willd.) Schrank

Jacobaea carniolica (Willd.) Schrank, Denkschr. Acad. Münch. 1813 (1814) 316 (n.v.). – *Senecio carniolicus* Willd. Sp. Pl., ed. 4, 3, 3 (1803) 1993. – ? *Senecio incanus* var. *carniolicus* (Willd.) Heathcote, Fl. Engadine (1891) 12, t. 121, comb. inval. (sine basion.) – *Senecio incanus* subsp. *carniolicus* (Willd.) Braun-Blanq., Neue Denkschr. Schweiz. Naturf. Ges. 48 (1913) 300.

11b. *Jacobaea carniolica* subsp. *insubrica* (Chenevard) Pelser, comb. nov.

Senecio carniolicus var. *insubricus* Chenevard, Bull. Herb. Boiss. II, 6 (1906) 368. – *Senecio carniolicus* subsp. *insubricus* (Chenevard) Braun-Blanq., Neue Denkschr. Schweiz. Naturf. Ges. 48 (1913) 300.

12. *Jacobaea delphiniifolia* (Vahl) Pelser & Veldk., comb. nov.

Senecio delphiniifolius Vahl, Symb. Bot. 2 (1791) 91, t. 45 ('*delphinifolius*').

Senecio crinitus Bertol., Opusc. Sci. 1 (1817) 234 (n.v.).

Jacobaea anthorifolia J. Presl & C. Presl, Delic. Prag. 1 (1832) 92 ('*anthoraefolia*').

13. *Jacobaea erucifolia* (L.) P. Gaertn., B. Mey. & Scherb.

Jacobaea erucifolia (L.) P. Gaertn., B. Mey. & Scherb., Oekon. Fl. Wetterau 3, 1 (1801) 208; M. Bieb. ex C.A. Mey., Verz. Pfl. Casp. Meer. (1831) 81 ('*erucaefolia*'), isonym. – *Senecio erucifolius* L., Sp. Pl. (1753) 869 (descr.), Addenda (2) (epithet). – *Jacobaea rubella* Moench, Methodus (1794) 586, nom. superfl.

Senecio tenuifolius Jacq., Fl. Austriac. 3 (1775) 42, t. 278. – *Senecio erucifolius* L. subsp. *tenuifolius* (Jacq.) Schübl. & G. Martens, Fl. Würtemberg (1834) 541. – *Senecio erucifolius* L. var. *tenuifolius* Cariot, Étude Fl., ed. 5, 2 (1872) 344.

Jacobaea suaveolens Gilib., Fl. Lituan. 1 (1782) 201, nom. inval. (n.v.)

Jacobaea tenuifolia J. Presl & C. Presl, Fl. Cech. (1819) 175 (no ref. to Jacquin!).

Senecio delphiniifolius Rchb., Iconogr. Bot. Pl. Crit. 4 (1826) 29 ('*delphinifolius*'), nom. inval., non Vahl (1791).

Senecio erucifolius L. subvar. *subglabra* Cariot, Étude Fl., ed. 5, 2 (1872) 344. – *Senecio arnassensis* Gand., Fl. Lyon. (1875) 123.

Senecio chabertii Gand. ex Cariot, Étude Fl., ed. 5, 2 (1872) 344; Gand., Fl. Lyon. (1875) 123 ('*chaberti*').

Senecio erucifolius L. var. *autumnalis* Gand. ex Cariot, Étude Fl., ed. 5, 2 (1872) 344. – *Senecio autumnalis* (Gand. ex Cariot) Gand., Fl. Lyon. (1875) 123.

13b. *Jacobaea erucifolia* subsp. *argunensis* (Turcz.) Veldk., comb. nov.

Senecio argunensis Turcz., Bull. Soc. Nat. Mosc. 20, 2 (1847) 18 (n.v.).– *Senecio erucifolius* L. subsp. *argunensis* (Turcz.) E. Wiebe, Fl. Sibir. 13 (1998, '1997') 166.

Senecio jacobaea L. var. *grandiflorus* Turcz. in DC., Prodr. 6 (1838) 350.

Senecio praealtus var. *dahuricus* DC., Prodr. 6 (1838) 351.

Senecio blinii H. Lév., Fedde, Repert. 8 (1910) 138.

14. *Jacobaea gallerandiana* (Coss. & Durieu) Pelser, comb. nov.

Senecio gallerandianus Coss. & Durieu, Bull. Soc. Bot. France 2 (1855) 365.

15. *Jacobaea gigantea* (Desf.) Pelser, comb. nov.

Senecio giganteus Desf., Fl. Atlant. 2 (1800) 273, t. 234.

16. *Jacobaea gnaphalioides* (Sieber ex Spreng.) Veldk., comb. nov.

Conyza gnaphalioides Sieber, Reise Kreta 2 (1823) 322, t. 10, f. 14, ('*gnaphalodes*'), non Kunth (1818). – *Senecio gnaphalioides* Sieber (Reise Kreta 1 (1823) 352, nom. inval., '*gnaphalodes*') ex Spreng., Syst. Veg. 4 (1826) 554. – *Conyza sieberi* Steud., Nomencl. Bot., ed. 2, 1 (1840) 414. – *Cineraria gnaphalioides* Nyman, Consp. Fl. Eur. (1879) 351 ('*gnaphalodes*'). – Lectotype: Sieber *s.n.* (L), '*Senecio gnaphalodes* Sieber. Stia', designated here.

Senecio sariacus Beauverd, Bull. Soc. Bot. Genève II, 12 (1921) 15.

17. *Jacobaea incana* (L.) Veldk., comb. nov.

Senecio incanus L., Sp. Pl. (1753) 869.

Note – *Jacobaea incana* Raf. (Med. Repos. New York 5 (1808) 354) is a nomen nudum, while *Jacobaea incana* Gilib. (Fl. Lituan. 1 (1782) 202) was published in an oppressed work (ICBN, Append. V).The combination based on the Linnean basionym is therefore still available for valid publication.

18. *Jacobaea leucophylla* (DC.) Pelser, comb. nov.

Senecio leucophyllus DC., Cat. Hort. Monsp. (1813) 144.

19. *Jacobaea maritima* (L.) Pelser & Meijden

Jacobaea maritima (L.) Pelser & Meijden, in Heukels, Fl. Nederl., ed. 23 (2005) 677. – *Othonna maritima* L., Sp. Pl. (1753) 925. – *Cineraria maritima* (L.) L., Sp. Pl., ed. 2 (1763) 1244. – *Jacobaea tomentosa* Moench, Methodus (1794) 587, nom. superfl. – *Senecio maritima* (L.) Rchb. in Mössler, Handb. ed. 2, 2 (1829) 1479; Fl. Germ. Excurs. (1832) 244, non L.f. (1781). – *Senecio cineraria* DC., Prodr. 6 (1838) 355. – *Senecio bicolor* subsp. *cineraria* (DC.) Chater, Bot. J. Linn. Soc. 68 (1974) 273.

Othonna cineraria L., Sp. Pl. (1753) 925. – *Cineraria canadensis* L., Sp. Pl., ed. 2 (1763) 1244. –Non *Senecio canadensis* L., Sp. Pl. (1753) 869!, nec *Senecio cineraria* DC. (1838). *Jacobaea cineraria* not in IPNI, see note.

Cineraria bicolor Willd., Sp. Pl., ed. 4, 3, 3 (1803) 2085. – *Senecio bicolor* (Willd.) Tod., Ind. Sem. Hort. Reg. Panorm. (1859) 22, 30; Linnaea 30 (1861) 759, non Viv. (1802). – *Senecio cineraria* subsp. *bicolor* (Willd.) Arcang., Comp. Fl. Ital., ed. 2 (1894) 672.

Cineraria nebrodensis Guss., Cat. Pl. Hort. Reg. Boccadifalco (1821) 72. – *Senecio bicolor* subsp. *nebrodensis* (Guss.) Chater, Bot. J. Linn. Soc. 68 (1974) 273. – *Senecio cineraria* subsp. *nebrodensis* (Guss.) Mabb., Watsonia 14 (1983) 279. – Non *Senecio nebrodensis* L. (1763), nec *Jacobaea nebrodensis* (L.) Raf. (1813)!

Cineraria candida C. Presl in J. Presl & C. Presl, Delic. Prag. (1822) 95. – *Senecio candidus* (C. Presl) DC., Prodr. 6 (1838) 355.

Senecio cineraria DC. var. *plattii* Meikle, Kew Bull. 1954 (1954) 142. – *Senecio bicolor* var. *plattii* (Meikle) Matthews, Notes Roy. Bot. Gard. Edinburgh 33 (1975) 434.

Note – *Othonna maritima* L. and *Othonna cineraria* L. were published simultaneously. We have not discovered who made the first choice between the two, but the first epithet is the one generally encountered, while for the epithet *cineraria* in the present context one is always referred to De Candolle (1838), a nomen novum for

Othonna cineraria necessitated in *Senecio* because of the older *S. maritima* L. f. (1781).

20. *Jacobaea maroccana* (P.H. Davis) Pelser, comb. nov.

Senecio maroccanus P.H. Davis, Notes Roy. Bot. Gard. Edinburgh 38 (1980) 445.

21. *Jacobaea minuta* (Cav.) Pelser & Veldk., comb. nov.

Cineraria minuta Cav., Icon. 1 (1791) 21, t. 33, f. 3. – *Senecio minutus* (Cav.) DC., Prod. 6 (1838) 346.

Cineraria heterophylla Ortega, Nov. Pl. Descr. Dec. (1798) 71, t. 10, f. 2.

22. *Jacobaea othonnae* (M. Bieb.) Spreng. ex C.A. Mey.

Jacobaea othonnae (M. Bieb.) Spreng. ex C.A. Mey., Verz. Pfl. Casp. Meer. (1831) 81. – *Senecio othonnae* M. Bieb., Fl. Taur.-Cauc. 2 (1808) 308. – *Iranecio othonnae* (M. Bieb.) B. Nord., Fl. Iran. 164 (1989) 58.

Cineraria anomala Sm., Fl. Graec. Prodr. 2 (1813) 179; Fl. Graec. 9 (1839) 56, t. 872.

Cacalia pinnata Willd., Enum. Hort Berol. (1809) 850. – *Senecio pinnatus* (Willd.) Sch.Bip., Flora 28 (1845) 499.

Senecio rariflorus K. Koch, Linnaea 17 (1843) 47. – *Senecio othonnae* var. *rariflora* (K. Koch) K. Koch, Linnaea 25 (1851) 366.

23. *Jacobaea paludosa* (L.) P. Gaertn., B. Mey. & Scherb.

Jacobaea paludosa (L.) P. Gaertn., B. Mey. & Scherb., Oekon. Fl. Wetterau 3 (1802) 211. – *Senecio paludosus* L., Sp. Pl. (1753) 870. – *Cineraria serratifolia* Gray, Nat. Arr. Brit. Pl. 2 (1821) 469, nom. superfl. – *Doria paludosa* (L.) Fourr., Ann. Soc. Linn. Lyon n.s. 16 (1868) 404.

Cineraria aurea L., Sp. Pl., ed. 2 (1763) 1244. – *Senecio auratus* DC., Prodr. 6 (1838) 348, non *S. aureus* L. (1753).

Senecio tataricus Less., Linnaea 9 (1834) 192. – *Jacobaea tatarica* (Less.) E. Wiebe, Turczaninowia 3 (2000) 62.

Solidago serratifolia Gilib., Fl. Lituan. 1 (1782) 202, nom. inval. (n.v.).

Senecio riparius Wallr., Sched. Crit. (1822) 482.

Senecio bohemicus Tausch, Syll. Pl. Nov. 2 (1828) 253. – *Jacobaea kosteleckii* Opiz, Seznam (1852) 54, nom. superfl. – *Senecio paludosus* subsp. *bohemicus* (Tausch) Čelak., Prodr. Fl. Böhmen (1871) 242.

Senecio sadleri Sadler, Fl. Comit. Pest., ed. 2 (1840) 403 (n.v.).

Senecio paludosus subsp. *tomentosus* Čelak., Prodr. Fl. Böhmen (1871) 242.

24. *Jacobaea persoonii* (De Not.) Pelser, comb. nov.

Senecio persoonii De Not., Repert. Fl. Ligust. (1844) 229 (n.v.). – *Senecio incanus* subsp. *persoonii* (De Not.) Nyman, Consp. Fl. Eur. (1879) 356.

Senecio incanus var. *italicus* Pers., Syn. Pl. 2 (1807) 435 – *Senecio incanus* subsp. *italicus* (Pers.) Pers. ex Arcang., Comp. Fl. Ital. (1882) 349.

25. *Jacobaea subalpina* (W. D. J. Koch) Pelser & Veldk., comb. nov.

Senecio subalpinus W. D. J. Koch, Flora 17 (1834) 614, nom. nov. pro *Cineraria alpina* auct. non L.f., e.g. Wahlenb., Fl. Carpat. Princ. (1815) 269. – *Cineraria alpina* [var. ß] *alata* L., Sp. Pl., ed. 2 (1763) 1243. – *Senecio alpinus* (L.) Scop. subsp. *subalpinus* (W. D. J. Koch) Hayek in Repert. Spec. Nov. Regni Veg. Beih. 30, 2 (1931) 680.

Cineraria cordifolia var. *auriculata* Jacq., Fl. Austriac. 2 (1774) 47, t. 177. – *Senecio alpinus* (L.) Scop. subsp. *auriculatus* (Jacq.) Rchb., Iconogr. Bot. Pl. Crit. 2 (1824) 23, t. 135. – *Senecio cordatus* subsp. *auriculatus* (Jacq.) Jacq. ex Arcang., Comp. Fl. Ital. (1882) 348.

26. *Jacobaea uniflora* (All.) Veldk., comb. nov.

Solidago uniflora All., Mélanges Philos. Math. Soc. Roy. Turin 2 (1773) 18. –*Senecio uniflorus* (All.) All., Fl. Pedem. 1 (1785) 200, t. 17, f. 3, non Retz. (1783). –*Senecio halleri* Dandy, Taxon 19 (1970) 625.

Senecio chabertii Petitm., Monde Pl. II, 6 (1904) 46 ('*chaberti*'), non Gand. ex Cariot, Étude Fl., ed. 5, 2 (1872) 344.

27. *Jacobaea vulgaris* Gaertn.

Jacobaea vulgaris Gaertn., Fruct. Sem. Pl. 2 (1791) 445, t. 170, f. 1. – *Senecio jacobaea* L., Sp. Pl. (1753) 870.

Senecio jacobaea var. *nudus* Weston, Bot. Univ. 2-3 (1772) 641 – *Senecio jacobaea* subsp. *nudus* (Weston) Soják, Čas. Cas. Nár. Muz., Odd. Pří. 148 (1980) 77.

Jacobaea sicca Gilib., Fl. Lithuan. 3 (1782) 149, nom. inval. (n.v.).

Senecio foliosus DC., Prodr. 6 (1838) 351.

Senecio flosculosus Jord., Cat. Graines Jard. Dijon 1848 (1848) 30, non *S. jacobaea* var. *flosculosus* Lam. & DC.

Senecio jacobaeoides Willk., in Willk. & Lange, Prodr. Fl. Hispan. 2 (1865) 119.

27b. ***Jacobaea vulgaris*** **subsp.** ***dunensis*** **(Dumort.) Pelser & Meijden**

Jacobaea vulgaris subsp. *dunensis* (Dumort.) Pelser & Meijden, in Heukels, Fl. Nederl., ed. 23 (2005) 677.

Senecio dunensis Dumort., Fl. Belg. (1827) 66. – *Senecio jacobaea* L. subsp. *dunensis* (Dumort.) Kadereit & P.D. Sell, Watsonia 16 (1986) 23.

Senecio jacobaea var. *nudus* auct. non Weston: Meijden, Gorteria 8 (1976) 57, t. 1.

Senecio jacobaea var. *flosculosus* Lam. & DC. in Lam., Fl. Franç. ed. 3, 4 (1805) 163. – *Jacobaea flosculosa* Fourr., Ann. Soc. Linn. Lyon, n.s. 16 (1868) 404, non *Senecio flosculosus* Jord. (1848).

Acknowledgements

We would like to thank Bertil Nordenstam and Werner Greuter for valuable suggestions on earlier drafts of this paper.

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Additions to the genus *Jacobaea* MILL. (Compositae-Senecioneae)

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Abstract

Eleven new combinations in *Jacobaea* MILL. (Compositae-Senecioneae) are proposed, all being transfers from *Senecio*.

Introduction

The recognition of *Jacobaea* MILL. as a genus distinct from *Senecio* L. (PELSER et al. 2006) necessitates some further transfers, listed below.

New combinations

***Jacobaea vulgaris* GAERTN. subsp. *gotlandica* (NEUM.) B. NORD., comb. nov.**

Senecio jacobaea var. *gotlandicus* NEUMAN in NEUMAN & AHLFVENGREN, Sv. Flora (1901), 26.
Senecio jacobaea subsp. *gotlandicus* (NEUMAN) STERNER, Fl. d. Insel Öland (Acta Phyt. Suec. 9)(1938), 162.

***Jacobaea mollis* (WILLD.) B. NORD., comb. nov.**

Senecio mollis WILLD., Sp. Pl. 3: 2011 (1803).
Senecio hebespermus DC., Prodr. 7: 301 (1838).
Senecio calvertii BOISS. in KOTSCHY exsicc. 1859, non BOISS., Diagn. Pl. Or. Nov. Ser. 2,3: 32 (1856).
Senecio tchihatchevii BOISS. in TCHICH., Asie Min. Bot. 2: 293 (1860).

***Jacobaea nudicaulis* (BUCH.-HAM. ex D. DON) B. NORD., comb. nov.**

Senecio nudicaulis BUCH.-HAM. ex D. DON, Prodr. Fl. Nepal 178 (1825).
Senecio pallens WALL. ex DC., Prodr. 6: 367 (1838).

Senecio yunnanensis Franch., Journ. de Bot. 8:363 (1894), non Franch., Bull. Soc. Bot. France 39: 303 (1892).

Senecio blattariifolius Franch., Journ. de Bot. 10: 415 (1896).
Senecio rosulifer Lev. & Van., Feddes Repert. 8: 359 (1910).
Senecio esquirolii Lev., Feddes Repert. 10: 352 (1912).

***Jacobaea renardii* (C. Winkl.) B. Nord., comb. nov.**
Senecio renardii C. Winkl. in Trautv., Regel, Maxim. & Winkl., Decas Pl. Nov. 6 (1882).
Senecio koelzii Rech. f., Dan. Biol. Skr. 8,2: 57 (1955).

***Jacobaea korshinskyi* (Krasch.) B. Nord., comb. nov.**
Senecio korshinskyi Krasch., Acta Inst. Bot. Acad. Sci. URSS. Ser. 1,3: 352 (1937).

***Jacobaea tibetica* (Hook. f.) B. Nord., comb. nov.**
Senecio tibeticus Hook. f., Fl. Brit. Ind. 3: 340 (1881).

***Jacobaea multibracteolata* (C. Jeffrey & Y. L. Chen) B. Nord., comb. nov.**
Senecio multibracteolatus C. Jeffrey & Y. L. Chen, Kew Bull. 39(2): 402 (1984).

***Jacobaea raphanifolia* (Wall. ex DC.) B. Nord., comb. nov.**
Senecio raphanifolius Wall. ex DC., Prodr. 6: 366 (1838).
Senecio diversifolius Wall. ex DC., Prodr. 6: 366 (1838), non Dum. (1827).

***Jacobaea echaeta* (Y. L. Chen & K. Y. Pan) B. Nord., comb. nov.**
Senecio echaetus Y. L. Chen & K. Y. Pan, Acta Phytotax. Sin. 19: 94 (1981).

***Jacobaea ambracea* (Turcz. ex DC.) B. Nord., comb. nov.**
Senecio ambraceus Turcz. ex DC., Prodr. 6: 348 (1838).
Senecio manshuricus Kitam. in Journ. Jap. Bot. 21: 55 (1947).

***Jacobaea argunensis* (Turcz.) B. Nord., comb. nov.**
Senecio argunensis Turcz., Bull. Soc. Nat. Mosc. 20, 2 (1847) 18. – *Senecio erucifolius* L. subsp. *argunensis* (Turcz.) E. Wiebe, Fl. Sibir. 13 (1998, '1997') 166.

Further synonymy, see Pelser et al. 2006.

Personally I prefer to keep *argunensis* as a species rather than a subspecies under *erucifolia*.

References

Pelser, P., Veldkamp, J.-F. & R. van der Meijden 2006. New combinations in *Jacobaea* Mill. (Asteraceae – Senecioneae). *Comp. Newsl.* 44: 1–11.

Nordenstamia Lundin (Compositae-Senecioneae), a new genus from the Andes of South America

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Abstract

The new genus *Nordenstamia* Lundin (Compositae-Senecioneae) is described.The type is *Gynoxys repanda* Wedd. dating from 1856, which was transferred to *Aequatorium* B. Nord. by C. Jeffrey in 1992. The new genus consists of about 20 species distributed along the Andes from northern Argentina and Bolivia to northern Peru and southern Ecuador. Many of the species belonging to *Nordenstamia* are currently misplaced in *Aequatorium*, *Gynoxys* and *Senecio.*

Introduction

When Nordenstam in 1978 described the genus *Aequatorium* he restricted the genus to comprise white-flowered, alternate-leaved shrubs and trees with a distinct tomentum of peltate-stellate trichomes in two layers especially on the abaxial leaf-sides. He discussed the yellow-flowered members of *Senecio* sect. *Praegynoxys* Cuatrec. as related, but not congeneric.

Later authors such as Jeffrey (1992) and Robinson & Cuatrecasas (1992) amended the generic concept of *Aequatorium* by including the members of sect. *Praegynoxys* as well as adding new yellow-flowered species from Bolivia and Peru. Nordenstam reluctantly followed suit and provisionally recognized *Praegynoxys* as a subgenus under *Aequatorium* (Nordenstam 1997).

During my studies of *Gynoxys* and in discussions with Dr. Nordenstam it has become increasingly clear that the *Praegynoxys* group is generically distinct from *Gynoxys* as well as from *Aequatorium*. This is also corroborated by ongoing molecular studies by the Senecioneae phylogeny group (Pelser et al., unpublished; Nordenstam, pers. comm.). I here propose the new generic name *Nordenstamia* for this distinctive taxon of Andean shrubs and trees.

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* Roger Lundin died unexpectedly from a heart attack on Nov. 15, 2005, at the age of 50. His manuscript to this article has been completed and revised by the Editor.

The new genus *Nordenstamia* LUNDIN thus comprises the taxa first recognized as section *Praegynoxys* within *Senecio* s. lat. by CUATRECASAS (1951) and later as a section of *Gynoxys* (CUATRECASAS 1955), and finally as a subgenus of *Aequatorium* (NORDENSTAM 1997). Since the genus *Aequatorium* was described in 1978 by NORDENSTAM, several transfers to *Aequatorium* have been made and a number of new species have been described (e.g., JEFFREY 1992, DÍAZ-PIEDRAHIITA & CUATRECASAS 1990, 1994, ROBINSON & CUATRECASAS 1992, NORDENSTAM 1997). Some of these, notably those from Colombia and Ecuador will remain in *Aequatorium*, whereas several others from Peru and Bolivia actually belong in *Nordenstamia*.

Aequatorium with white rays, obtuse style branches of disc-florets, and a characteristic stellate tomentum is a distinct genus of about ten species restricted to Ecuador and Colombia, whereas *Nordenstamia* with yellow rays, pointed style branch tips, and substellate or variously branching trichomes comprises about 20 species confined to Peru, Bolivia and northern Argentina. The generic name is proposed in honour of my long-term mentor, colleague and friend BERTIL NORDENSTAM, who is a world authority on the Senecioneae and who introduced me to this exciting and variable group of plants during our common field trips in Latin America.

Material and methods

Herbarium material has been studied from the herbaria: GB, MO, NY, P, S, U, US, and additional specimens from some other herbaria.

Taxonomy and discussion

***Nordenstamia* LUNDIN, gen. nov.** (Compositae-Senecioneae)

Type: *N. repanda* (WEDD.) LUNDIN.

Frutices vel arbores, partibus vegetativis saltem in foliorum paginis inferioribus pubescentibus; trichomata ramosa–furcata–substellata. Folia alterna lanceolata–elliptica–ovata integra coriacea petiolata vel raro sessilia, margine repanda vel sinuato-dentata vel denticulata, supra glabrescentia, subtus plus minusve tomentosa. Capitula heterogama radiata plura vel numerosa in synflorescentiam terminalem pyramidalem vel umbelliformem disposita. Involucrum cylindraceo-cyathiforme calyculatum; bracteis subuniseriatis oblongo-lanceolatis. Flosculi radii feminei flavi vel lutei. Flosculi disci hermaphroditi; corolla flava quinquelobata. Antherae basi ecaudatae sagittatae; cellulae endothecii parietibus horizontalibus solum noduliferis; collum filamenti cylindraceum. Styli rami apice acuti pilis brevibus et penicillo centrali abbreviato ornato. Cypselae homomorphae costatae glabrae. Pappi setae numerosae barbellatae persistentes.

Erect branching shrubs or trees 2–18 m tall, finely tomentose-pubescent at least on young vegetative parts and leaf undersides. *Leaves* alternate or rarely opposite, petiolate or rarely sessile, lanceolate to narrowly ovate or ovate-cordate, entire, midribbed and pinnately veined, coriaceous; margins shallowly sinuate-dentate or repand or denticulate, apex acute or mucronate, base truncate or somewhat cordate; upper side glabrescent; lower side greyish-white-tomentose with substellate or branching, sometimes globose-glochidiate trichomes. *Capitula* heterogamous, radiate, several to numerous in terminal umbelliform or subpyramidal synflorescences. *Receptacle* flat or somewhat convex, indistinctly alveolate. *Involucre* subcylindrical – cupshaped with few, short calyculus bracts; involucral bracts 5–10, subuniseriate, oblong or elliptic-oblong, coriaceous, glabrous or finely tomentose. *Ray-florets* 3–5, female; ligule yellow; style bilobed, fertile. *Disc-florets* 5–15, hermaphrodite; corolla yellow, 5-lobed with narrowly triangular-ovate lobes. Anthers basally sagittate, ecaudate; apical appendage oblong-ovate; endothecial tissue polarized; filament collar cylindrical, not basally thickened. Style branches linear-oblong, apically acute—conical with a short central pencil of hairs; outside distally papillate. *Cypselas* homomorphic, oblong, glabrous, costate. *Pappus* bristles numerous, persistent, white, barbellate.

Type: ***Nordenstamia repanda*** **(WEDD.) LUNDIN, comb. nov**.

Basionym: *Gynoxys repanda* WEDD., Chlor. Andina 1: 77 (1856). Syn.: *Aequatorium repandum* (WEDD.) C. JEFFREY, Kew Bull. 47(1): 62, in corrigendo (1992). - Type: Bolivia, Prov. de Larecaja, vallée de Tipuani, 1851, WEDDELL s.n. (P! holo., iso.!) - Fig. 1.

The new genus comprises about 20 species distributed from northern Argentina through Bolivia to northern Peru and southern Ecuador. The type species *N. repanda* is restricted to central Bolivia and southern Peru. A review of the known species will be published in a forthcoming paper by B. NORDENSTAM.

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Robinson, H. & J. Cuatrecasas 1992. Additions to *Aequatorium* and *Gynoxys* (Asteraceae: Senecioneae) in Bolivia, Ecuador and Peru. *Novon* 2: 411–416.

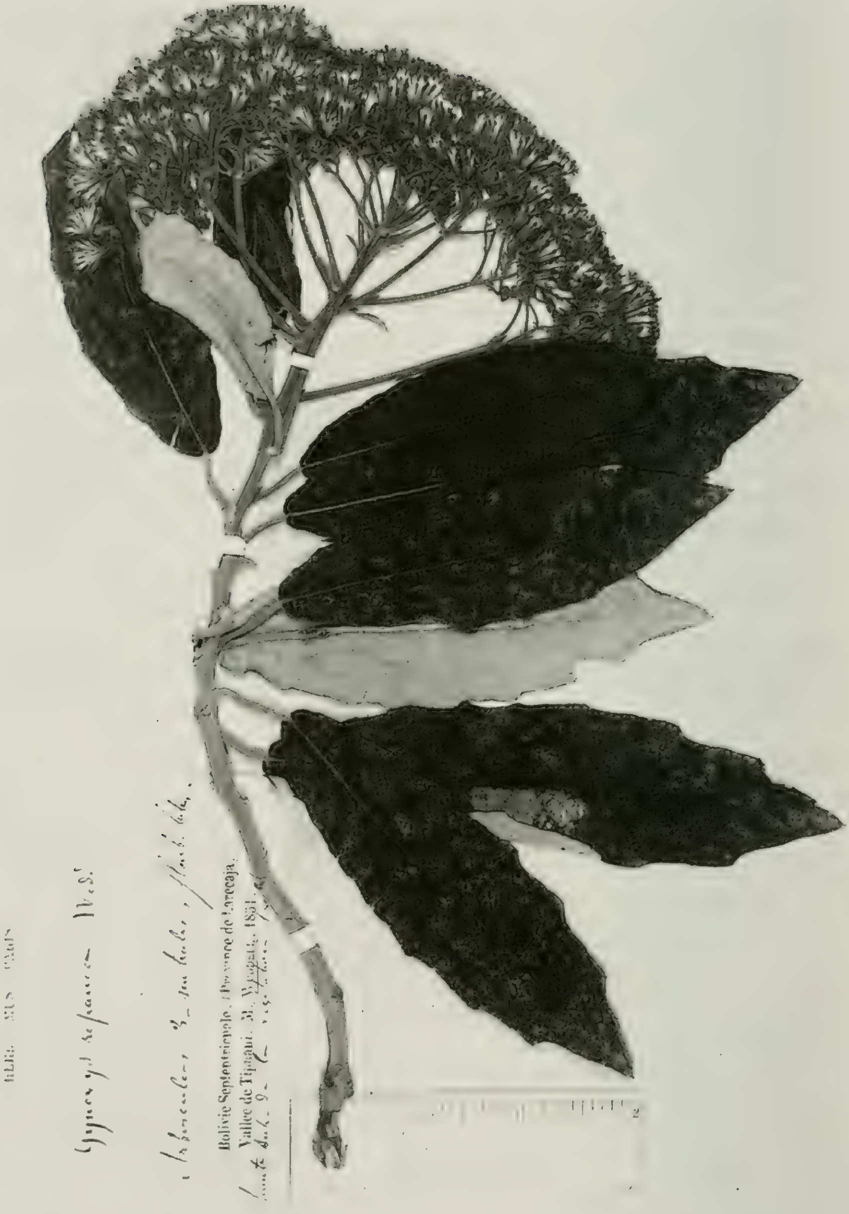
Bolivie Septentrionale. Province de Larecaja.
Vallée de Tipuani. ... Weddell. 1851.

Fig. 1. *Gynoxys repanda* Wedd., type of the new genus *Nordenstamia* Lundin. Weddell s. n., Bolivia, Prov. de Larecaja, vallée de Tipuani, 1851 (P holotype).

New combinations in *Nordenstamia* (Compositae-Senecioneae) from Argentina, Bolivia, Peru and Ecuador

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Abstract

Fourteen new combinations are made in the genus *Nordenstamia* LUNDIN (Compositae-Senecioneae). The transfers are species from Argentina, Bolivia, Peru and southern Ecuador previously treated under *Senecio*, *Gynoxys* or *Aequatorium*.

Introduction

The new genus *Nordenstamia* LUNDIN has been recently established for a group of Andean shrubs and trees, based on *Gynoxys repanda* WEDD. (LUNDIN 2006). The new genus is allied to *Gynoxys* CASS. and *Aequatorium* B. NORD. The former genus is characterized by consistently opposite leaves, yellow-flowered capitula, much pointed style branches and a tomentum of simple hairs. *Aequatorium* (NORDENSTAM 1978) is distinct by the alternate leaves, white florets, obtuse disc-floret styles without a central pencil, and a double tomentum of stellate-peltate trichomes. *Nordenstamia* has (generally) alternate leaves and yellow-flowered capitula, and a somewhat pointed tip to the disc-floret styles. A number of species up to now placed in *Aequatorium*, *Gynoxys* or *Senecio* (in sect. or subgen. *Praegynoxys*), need to be transferred to *Nordenstamia*. Some taxa of *Nordenstamia* from Bolivia and Peru are still undescribed and will be treated in a forthcoming paper.The genus is an important constituent in the cloud forest vegetation especially on the Amazonian side of the Andes, and new taxa can be expected to be found in Bolivia and Peru. Field work in Peru in Dec. 2005 to Jan. 2006 yielded some interesting finds to be discussed in future papers. The generic position of the few opposite-leaved taxa (cf. BELTRÁN & ROBINSON 2005) is still uncertain and will be further investigated.

Material and methods

Herbarium material was made available to me from a number of herbaria (abbreviations in accordance with HOLMGREN & HOLMGREN 1998-), viz. mainly MO, NY, P, S, U, US and additional specimens from some other herbaria.

New combinations in *Nordenstamia*

Nordenstamia cajamarcensis **(H. ROB. & CUATREC.) B. NORD., comb. nov.**

Basionym: *Aequatorium cajamarcense* H. ROB. & CUATREC., Novon 2: 411 (1992).
Type: Peru. Cajamarca: Prov. Cutervo, Distrito San Andrés de Cutervo, Parque Nacional de Cutervo, caserío "Pajonal", camino hacia Jaén (Chorro blanco), 2600 m, 10.VIII.1987, DÍAZ & OSORES 2585 (US holo.; MO iso.).

Nordenstamia carpishensis **(CUATREC.) B. NORD., comb. nov.**

Basionym: *Gynoxys carpishensis* CUATREC., Brittonia 12: 185 (1960).
Synonym: *Aequatorium carpishense* (CUATREC.) H. ROB. & CUATREC., Novon 2: 412 (1992).
Type: Peru. Carpish, between Huánuco and Tingo María, 2800 m, 10.VII.1957, H. ELLENBERG 2211 (U holo.).

Nordenstamia fabrisii **(CABRERA) B. NORD., comb. nov.**

Basionym: *Gynoxys fabrisii* CABRERA, Bol. Soc. Argent. Bot. 15(4): 332 (1974).
Synonym: *Aequatorium fabrisii* (CABRERA) C. JEFFREY, Kew Bull. 47(1): 61 (1992).
Type: Argentina, Jujuy, Valle Grande, Río Jordán, FABRIS, CRISCI & PETYRIELLA in FABRIS 5717 (LP holo.; K iso.).

Nordenstamia huanucona **(CUATREC.) B. NORD., comb. nov.**

Basionym: *Senecio huanuconus* CUATREC., Fieldiana Bot. 27(2): 45 (1951).
Synonym: *Gynoxys huanucona* (CUATREC.) CUATREC., Brittonia 8: 158 (1955).
Type: Peru. Huanuco, 1927, M. SAWADA 45 (F holo.; US iso.).

Nordenstamia juninensis **(H. ROB. & CUATREC.) B. NORD., comb. nov.**

Basionym: *Aequatorium juninense* H. ROB. & CUATREC., Novon 2: 412 (1992).
Type: Peru. Junín: Carpapata, above Huacapistana, 2700-3200 m, 7.VI.1929, KILLIP & SMITH 24434 (US holo.).

Nordenstamia kingii **(H. ROB. & CUATREC.) B. NORD., comb. nov.**

Basionym: *Aequatorium kingii* H. ROB. & CUATREC., Novon 2: 412 (1992).
Type: Bolivia, Cochabamba: 15 km from Colomi on the road to Tunari, 10,600 ft., 7.II.1978, KING & BISHOP 7680 (US holo.; MO iso.).

N. kingii is a characteristic species, usually easily recognized by the long and rather stiff hairs on the branches and petioles, and the ovate and basally broadly cordate leaves. The short tomentum of branched hairs especially on the undersides of the leaves is variable, from dense and light grey to a looser brownish indumentum. It is a shrub or small tree to 3 m tall.

Further collections examined: Bolivia, Cochabamba: 26 km from Comarapa on road to Cochabamba, 8,500 ft., 5.II.1978, King & Bishop 7650 (MO!, US!); N of Monte Punku on road Cochabamba-Comarapa, 17°33.15'S, 65°16.70'W, 2850 m, Ståhl 5582A (S!); Prov. Carrasco, 5 km al NE de Monte Punco por el camino a Sihuenca, 17°34' S, 65°15' W, 2700 m, 10.III.1988, Solomon & Nee 18067 (NY!, US!); Prov. Carrasco, 3,5 km E del pueblo de Siberia, 17°50' S, 64°44' W, 2950 m, 5.III.1988, Mario Saldias 279 (NY!); Santa Cruz: Prov. Caballero, Loc. Torresillas-Trayecto entre Estancia Las Abras y Laguna Brava, 17°48' S, 64°37' W, 2500-3000 m, 8-9.V.1992, Vargas & Prado 1316 (NY!); Prov. Caballero, Parque Nacional Amboro, Laguna Brava y Cerro Ponguillo entrando por "la Jarra" desde la vicinidad de Torredillas, 17°47'37"S, 64°36'38"W, 3100 m, 4.IV.1996, Jardim, Vargas, Navarro & Barra 2700 NY!); Prov. Caballero, Parque Nacional Amboro, 25 km al N de San Juan del Potrero, 17°52'36.1"S, 64°21'55.5"W, 2630 m, 10.IV.1996, Jardim, Navarro, Vargas & Barra 2881 (NY!).

A deviating collection from Chuquisaca (Prov. Sud Cinti, Cerro Bufete, cumbre de la parte tabular en el lado nororiental, 20°50'S, 64°22'W, 2250-2300 m, 19.V.1995, Arroyo, Serrano & Holst 954, NY!, USZ) differs in leaf-shape and tomentum, but since it is devoid of flowering capitula, the determination is uncertain.

***Nordenstamia limonensis* (B. Nord.) B. Nord., comb. nov.**

Basionym: *Aequatorium limonense* B. Nord., Comp. Newsl. 31: 14 (1997). Type: Ecuador, Morona-Santiago: 49 km from Limón on road to Gualaceo, 2,300 m, 16.VIII.1996, Ståhl & Knudsen 2882 (S! holo.).

- Obs. The relationship to *Gynoxys azuayensis* Cuatrec., which may be conspecific, needs further investigation. In fact, all three opposite-leaved species of *Aequatorium* (Robinson & Beltrán 2005) are only provisionally placed in *Nordenstamia*.

***Nordenstamia longistyla* (Greenm. & Cuatrec.) B. Nord., comb. nov.**

Basionym: *Senecio longistylus* Greenm. & Cuatrec., Collect. Bot., Barcinone, 3: 292 (1953).
Synonym: *Gynoxys longistyla* (Greenm. & Cuatrec.) Cuatrec., Brittonia 8: 158 (1955).
Type: Peru, Prov. Moquegua, Saylapa, near Carumas, 3600–3700 m, A. Weberbauer 7331A (F holo.).

***Nordenstamia pascoensis* (H. Beltrán & H. Rob.) B. Nord., comb. nov.**

Basionym: *Aequatorium pascoense* H. Beltrán & H. Rob., Comp. Newsl. 42: 5 (2005). Type: Peru, Dpto. Pasco, Prov. Oxapampa, rail to summit of Cordillera Yanachaga, via Río San Daniel, 2600 m, 18.VII.1984, D. N. Smith & H. Botiger 7884 (USM holo; AMAZ, MO, US iso.).

***Nordenstamia rimachiana* (Cuatrec.) B. Nord., comb. nov.**

Basionym: *Gynoxys rimachiana* Cuatrec., Phytologia 52: 164 (1982).
Synonym: *Aequatorium rimachianum* (Cuatrec.) H. Rob. & Cuatrec., Novon 2: 413 (1992).
Type: Peru, Huánuco, Dpto. Chincao, highway Tingo Maria-Huánuco, El Mirador near Carpish, 2600-2700 m, 21.III.1980, M. Rimachi 4908 (US holo.; F iso.).

***Nordenstamia stellatopilosa* (Greenm. & Cuatrec.) B. Nord., comb. nov.**

Basionym: *Senecio stellatopilosus* Greenm. & Cuatrec., Collect. Bot., Barcinone, 3: 264 (1953).
Synonym: *Aequatorium stellatopilosum* (Greenm. & Cuatrec.) C. Jeffrey, Kew Bull. 47: 62 (1992).
Type: Peru, Villcabamba, Río Chinchao, Macbride 4946 (F holo.).

***Nordenstamia tovarii* (H. Rob. & Cuatrec.) B. Nord., comb. nov.**

Basionym: *Aequatorium tovarii* H. Rob. & Cuatrec., Novon 2: 413 (1992). Type: Peru. Huancavelica: Prov. Tayacaja, Arriba de Marcavalle, entre Huachocolpa y Tintay, 3300 m, 21.IV.1964, Tovar 4781 (US holo.).

***Nordenstamia tuestae* (Cuatrec.) B. Nord., comb. nov.**

Basionym: *Senecio tuestae* Cuatrec., Fieldiana Bot. 27(2): 46 (1951). Synonym: *Aequatorium tuestae* (Cuatrec.) H. Rob. & Cuatrec., Novon 2: 413 (1992). Type: Peru. Dep. Huanuco, Pillao, 2700 m, D. Tuesta Díaz & Woytkowski 34095 (F holo.)

***Nordenstamia woytkowskii* (Cuatrec.) B. Nord., comb. nov.**

Basionym: *Senecio woytkowskii* Cuatrec., Fieldiana Bot. 27(2): 49 (1951). Synonym: *Gynoxys woytkowskii* (Cuatrec.) Cuatrec., Brittonia 8: 158 (1955). Type: Peru. Huanuco, vic. of Tambo de Vacas, 3500 m, 4.XI.1937, Woytkowski 145 (F holo.)

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Canariothamnus B. Nord., a new genus of the Compositae-Senecioneae, endemic to the Canary Islands

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Abstract

Canariothamnus B. Nord. is recognized as a new genus of the tribe Senecioneae from the Canary Islands. Two species are transfers from *Senecio* (sect. *Bethencourtii* DC.) and a third new species, *C. rupicola* B. Nord. is described from the island of La Gomera.

Introduction

The Canary Islands are renowned for their high degree of endemism at different taxonomic levels of flowering plants. On the species level about 500 species out of a total of 1200 native flowering plants are endemic, or 42% (Davis & al. 1994). The number of endemic genera varies with taxonomic opinion, but usually 20 genera endemic to the Canary Islands are recognized.

The islands are part of the Macaronesian Floristic Region, and a number of further genera are Macaronesian endemics, e.g. *Pericallis* D. Don in Sweet in the tribe Senecioneae of the Compositae, with 14 species, 12 of which are endemic to the Canary Islands (Bramwell & Bramwell 2001, Swenson & Manns 2003, Swenson 2004).

According to current taxonomic opinion four species of *Senecio* L. are endemic to the Canary Islands, viz. *S. teneriffae* Sch. Bip. ex Bolle, *S. bollei* Kunk. & Sund., *S. palmensis* (Nees) Chr. Sm. ex Link in Buch, and *S. hermosae* Pitard. The first mentioned is allied to the generic type *S. vulgaris* and accordingly belongs in sect. *Senecio*, whereas *S. bollei* is not assigned to a section. The two last mentioned species, i.e., *S. palmensis* and *hermosae* together constitute the sect. *Bethencourtii* DC. (Candolle 1838, Nordenstam 1978, Jeffrey 1992).

The taxonomic status of sect. *Bethencourtii* was discussed at some length by Nordenstam (1978). Its isolated and anomalous position within *Senecio* was pointed out. Especially the caudate anthers and the obtuse style-branches with papilliform sweeping-hairs serve to characterize the group.

Exceptionally, KUNKEL treated this group as a genus under the name *Bethencourtia*, although with some hesitation (KUNKEL 1975, 1980), and he made the new combination *B. hermosae* (PITARD) KUNKEL. However, *Bethencourtia* CHOISY was not validly published as a genus, since CHOISY's generic description appeared in synonymy of *Senecio palmensis* (BUCH 1825). There is also a homonym, viz. *Betencourtia* ST.-HIL. (published in 1833, now a synonym of *Galactia* P. BR. in the Leguminosae).

A renewed study of sect. *Bethencourtii* has led to the conclusion that it is best treated as a separate genus. Already CHOISY in BUCH (1825) expressed the same opinion when he introduced the generic name *Bethencourtia*. As mentioned, this name was not validly published and cannot now be adopted for reasons of homonymy. The genus is here described as new and the proposed name *Canariothamnus* needs no further explanation.

Discussion

In several morphological features the new genus *Canariothamnus* is reminiscent of the Malagasy genus *Hubertia* BORY, such as the shrubby habit, narrow sessile leaves, numerous small and yellow-flowered capitula, caudate anthers, etc. However, a close relationship between these two genera is not suggested and is also not supported by ongoing molecular studies (Senecioneae phylogeny Group, PELSER et al. in progress). All three taxa of *Canariothamnus* are included in a broad study of the whole tribe and they form a closely knit group, which is only remotely related to *Senecio*. A very close relationship between *Canariothamnus* and *Hubertia* is not indicated by the molecular data, but *Senecio* s.str. (including of course the type *S. vulgaris*) is even more distantly positioned in our phylogenetic tree. *Canariothamnus* belongs with a few African elements (named *Senecio*, but still unassigned to genera) in a clade which appears as sister to a *Jacobaea* clade. The circumscription of monophyletic generic concepts such as *Senecio* s. str., *Jacobaea*, and other presently ill-defined or unrecognised taxa will be discussed in forthcoming papers, together with a presentation of the complete phylogenetic tree.

The balusterform filament collars, distinct anther tails, and small prismatic hexagonal ovary wall crystals in taxa now referred to *Canariothamnus* were illustrated in NORDENSTAM (1978: Figs. 7B, 10E & 33).

The two known species of *Senecio* sect. *Bethencourtii*, viz. *S. palmensis* and *hermosae*, are here transferred to the new genus *Canariothamnus*. During the field work within the present study it became apparent that a third taxon exists on the small island of La Gomera. It is here described as a new species, *Canariothamnus rupicola* B. NORD.

Taxonomy

***Canariothamnus* B. NORD., gen. nov.**

Syn.: *Bethencourtia* CHOISY ex LINK in BUCH, nom. illeg., Phys. Beschr. Canar. Ins. 148 (1825), in syn., non *Betencourtia* ST.-HIL., Voy. Intér. Brésil. 1: 376 (1833); *Senecio* sect. *Bethencourtii* DC., Prodr. 6: 411 (1838).

Fruticuli glabri ramosi erecti vel ascendentes. Folia alterna sessilia lineari-lanceolata integra vel sparse dentata vel lobata vel pinnatipartita. Capitula parva corymbosa ecalyculata heterogama radiata flaviflora. Involucri bracteae uniseriatae paucae (4–5). Flosculi radii feminei 1–3 brevi. Flosculi disci 3–5 hermaphroditi; corolla 5-lobata.. Antherae caudatae; endothecium radiale. Styli rami apice obtusi vel subtruncati papillati; areis stigmaticis fere confluentibus. Cypselae oblongae brevihirsutae vel papillosae 5-costatae. Pappi setae numerosae albae minute barbellatae semipersistentes.

Typus: *C. palmensis* (NEES) B. NORD.

Small glabrous shrubs, repeatedly and densely branching. Leaves alternate, sessile, linear to oblanceolate, entire, or toothed or few-lobed to pinnatipartite. Capitula small, corymbose in rather dense bracteate terminal synflorescences, radiate, yellow-flowered. Involucre narrowly campanulate to turbinate, ecalyculate, but subinvolucral bracts present, small, subulate; involucral bracts uniseriate, few (4–7). Ray-florets female, fertile, few (1–3). Disc-florets hermaphrodite, few (3–5); corolla 5-lobed; lobes narrowly ovate-lanceolate, midveined. Anthers tailed; endothecial tissue mainly radial; filament collars balusterform; apical appendage ovate-oblong, flat, obtuse. Style branches obtuse to subtruncate, apically with few and short papilliform sweeping-hairs, inside stigmatic area continuous or nearly so. Cypselas terete, narrowly oblong, shortly hirsute or papillose with obtuse duplex hairs, 5-veined or -ribbed; carpopodium distinct of several cell layers. Pappus bristles numerous, minutely barbellate, white, semi-persistent, basally connate.

Species 3, Canary Islands.

Chromosome no.: n=10 (*C. palmensis*, ORTEGA & NAVARRO 1977).

Key to the species of *Canariothamnus*:

1. Most leaves lanceolate-oblong or oblanceolate, up to 10 mm broad, shortly 3–5-

dentate or -lobed with ovate-oblong lobes 1–5 mm long .... 1. *C. palmensis*
Leaves entire or 2–5-lobed with linear-filiform lobes 5–20 mm long 2

2. Leaves 2–3 cm long, 3–5-lobed; lobes 5–10 mm long .... 2. *C. rupicola*
Leaves 3–7 cm long, entire or mostly 3-lobed; lobes 10–25 mm long ....
.... 3. *C. hermosae*

1. *Canariothamnus palmensis* (NEES) B. NORD., comb. nov.

Basionym: *Cineraria palmensis* NEES, Horae phys. Berol. Tab. 24 (1820).

Syn.: *Bethencourtia palmensis* (NEES) CHOISY ex LINK in BUCH, Phys. Beschr. Canar. Ins., 148 (1825), nom. illeg.; *Senecio palmensis* (NEES) CHR. SM. ex LINK in BUCH, l.c.

Leaves 2–3.5 cm long, 2–10 mm broad, oblanceolate to narrowly oblong-obovate, mostly 3–5(–7)-lobed, some entire or bilobed, flattened, coriaceous; lobes ovate to triangular-oblong, 1–3 mm long, mucronate. *Involucral bracts* 4–5. No distinct calyculus, but small peduncular and subinvolucral bracts present. *Ray-florets* 1–3; tube equalling lamina in length; lamina 4-veined, with additional incomplete veins apically. *Disc-florets* 3–5. Style branches short, not exserted, apically obtuse with few short papilliform pili. Anther tails long, about the length of the balusterform collar. *Cypsela* narrowly oblong, 2.5–3 mm long, straw-coloured, with 5 impressed veins, shortly puberulous with white papilliform obtuse duplex hairs mainly along the veins. *Pappus* bristles numerous, 2.5–3 mm long, minutely barbellate, white, semi-persistent.

C. palmensis is fairly common in the Caldera region of La Palma up to 2400 m s.m., also occurring in barrancos at lower altitudes (450 m, BRAMWELL & BRAMWELL 1974, 2001; 165 m, LID 1967). On Tenerife it is more rare, found in a handful of localities in Las Cañadas around 2000 m (e.g. at Roque del Almendro Amargo, near Boce del Tauce, NORDENSTAM 9326 in S) and lower down in the Barranco del Río (on steep cliffs at 1400 m, NORDENSTAM 9328 in S). There is a single record from a much lower altitude (<400 m) in Arico in eastern Tenerife.

In spite of the small flowerheads the plants may be rather showy when the densely corymbose synflorescences are in full flower (cf. photo in BRAMWELL & BRAMWELL 2001: 353).

The local name is 'Turgayte' (SCHENCK 1907, BRAMWELL & BRAMWELL 1974, 2001).

2. *Canariothamnus rupicola* B. NORD., sp. nov.

Type: Canary Islands, La Gomera, Parque Nacional de Garajonay, Roque de la Zarcita, 1020 m, steep phonolithic rocks, E–NE aspect, 28.II.2002, NORDENSTAM 9333 (S holotype; K, MA, O isotypes).

Fruticulus ramosus glaber c. 0.5–1 m altus et latus. Folia alterna 2–3.5 cm longa linearia integra vel plerumque 3–5-lobata coriacea; lobis linearis usque ad 10 mm longis et

2 mm latis. Capitula parva numerosa subcorymbosa heterogama ecalyculata. Involucrum anguste campanulato-cylindraceum; involucri bracteae 5–6 lineari-oblongae. Flosculi radii feminei 2–3 flavi. Flosculi disci 3–5 hermaphroditi; corolla flava 5-lobata. Cypselae anguste oblongae puberulae. Pappi setae numerosae barbellatae albae.

Branching glabrous shrublet ca. 0.5-1 m high and wide. *Leaves* 2–3.5 cm long, mostly 3–5-lobed, some bilobed or simple, flattened, subcoriaceous, greyish-green; leaf lobes linear, 5–10 mm long, 1.5–2 mm wide, apically mucronate with brownish-black tips. *Capitula* several to numerous in corymbose bracteolate synflorescences, small, heterogamous; peduncular and subinvolucral bracts small, ca. 1 mm long, subulate. *Involucre* narrowly campanulate to subcylindrical; involucral bracts 5–6, uniseriate, narrowly oblong-lanceolate, 3.5–4 mm long and 0.7–1.2 mm wide, green, 1–3-veined, acute or somewhat acuminate, some with narrow scarious margins. *Ray-florets* 2–3, female, fertile, light yellow; tube cylindrical, 2–3 mm long; lamina oblong, 2.5–3 mm long, 1–1.5 mm wide, 4-veined, apically 3-toothed. Style branches linear, 0.7–0.8 mm long, with continuous stigmatic area, apex obtuse. *Disc-florets* 3–5, hermaphrodite. Corolla yellow, tubular below, gradually widening above, 5-lobed; lobes narrowly ovate, 1–1.2 mm long, distinctly midveined, acute. Anthers 1.7–1.8 mm long including appendage and tails; distinctly caudate; tails ca. ½ the length of filament collar or longer; apical appendage narrowly ovate-oblong, obtuse; endothecial tissue mainly radial with small thickenings; collar elongated, balusterform. Disc style branches linear with confluent stigmatic areas, apically obtuse to subtruncate with only short and few papilliform hairs outside laterally. *Cypselas* narrowly oblong, ca. 2 mm long, 5-ribbed or -veined, shortly villous with white papilliform duplex hairs mainly along the veins; carpopodium distinct of 10–12 cell rows; ovary wall crystals hexa- to octagonal, flat. *Pappus* bristles numerous, white, minutely barbellate, semi-persistent, basally connate into an annulus.

This rare species is only known from three small populations at higher altitudes of La Gomera. In the type locality I counted to only five plants, growing in partly inaccessible rock crevices of the sheer phonolithic precipice of Roque de la Zarcita. These specimens were all large and healthy. The species is also found in two places at Roque de Agando, with a few and somewhat depauperate specimens. My colleague ULF SWENSON in Stockholm (S) inspected one of these populations in 1993 (Roque de Agando, NE slope, 1150 m, 20.III.2003, SWENSON 580, photo in S) and he confirms that it is dwindling and that its future is precarious. *C. rupicola* must be classified as a highly endangered species.

3. *Canariothamnus hermosae* (PITARD) B. NORD., comb. nov.

Basionym: *Senecio hermosae* PITARD in PITARD & PROUST, Iles Canaries 239 (1908).

Syn.: *Bethencourtia hermosae* (Pitard) Kunkel, Cuad. Bot. Canar. 25: 28 (1975), nom. illeg.

Illustr.: Lid 1967 Plate 3; Bramwell & Bramwell 1974, Fig. 100; Nordenstam 1978, Fig. 33 C, F, G.

Leaves simple or 2–3-lobed, most leaves 3-lobed, 3–7 cm long; lobes linear-filiform, flattened, 1–2.5 cm long. *Involucral bracts* 6–7, lanceolate, 4.5–5 mm long. *Cypselas* terete, narrowly oblong-cylindrical, 2.5–2.8 mm long, greenish to brownish, 5-striate, densely puberulous with white papilliform duplex trichomes. *Pappus* bristles semi-persistent, minutely barbellate, 2.5–3 mm long, white.

C. hermosae is readily distinguished from its congeners by the longer and more dissected leaves. The leaves often have three narrow segments, which are flattened (not cylindrical, as sometimes stated in literature), but as in the other taxa some leaves may be entire or 4–5-lobed.

C. hermosae is endemic to La Gomera, where it is rare and local, found in a few small populations in the Vallehermoso region, e.g. on the steep walls of Roque Cano, and on cliffs at Presa del Encantadora at 340 m s.m. (Nordenstam 9332 in S).

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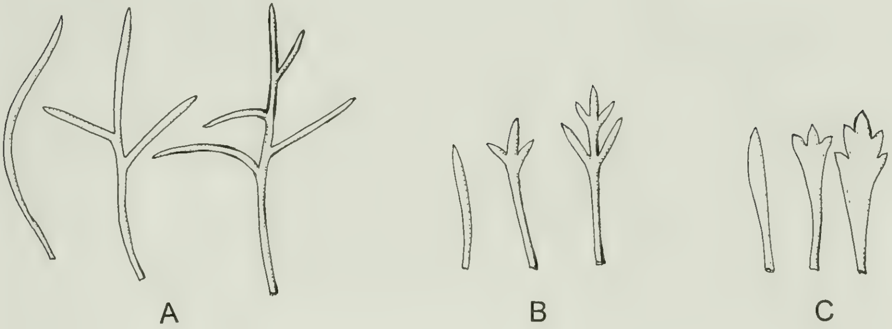

Fig. 1. Leaf outlines in *Canariothamnus.*

A *C. hermosae.*
B *C. rupicola.*
C *C. palmensis.*
(A Nordenstam 9332, B Nordenstam 9333, C Nordenstam 9326, all in S). × ½.
Del. B. Nordenstam.

Nephrotheca, a new monotypic genus of the Compositae-Calenduleae from the southwestern Cape Province

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Abstract

Nephrotheca B. Nord & Källersjö is described as a new genus of the Compositae-Calenduleae. The single species *N. ilicifolia* (L.) B. Nord. & Källersjö is distributed in the southwestern Cape Province of South Africa.The species has previously been included in *Gibbaria* Cass. because of a similar fruit morphology, but is generically distinct on morphological and molecular evidence.

Introduction

Ongoing phylogenetic studies of the tribe Calenduleae have clearly demonstrated the polyphyletic nature of the small genus *Gibbaria* Cass.This genus was established by Cassini (1817) with a single species, *G. bicolor* Cass.The genus was not well understood by later authors, e.g. Harvey (1865), who listed it as a doubtful genus of the Arctotideae.

Norlindh (1943) recognized *Gibbaria* as a distinct genus related to *Osteospermum* L. and especially to *Calendula* L. He noted that the generic type had been described already by Thunberg (1800) as *Osteospermum scabrum* Thunb. De Candolle (1836) described the same taxon as *Xerothamnus ecklonianus* DC. without realizing its identity with *Osteospermum scabrum* Thunb. or *Gibbaria bicolor* Cass. As pointed out by Norlindh (1943) the correct name of the type of *Gibbaria* is *G. scabra* (Thunb.) T. Norl.

However, Norlindh (1943) added a second species, *G. ilicifolia* (L.) T. Norl., based on *Osteospermum ilicifolium* L. (Linnaeus 1759).This is a well-known plant from the southwestern Cape, fairly common on Table Mountain, and illustrated as early as 1739 by Burman.

Norlindh based his taxonomic decision on the generic position of *O. ilicifolium* on a single character, viz. the shape of the cypsela.This is curved and kidney-shaped and also provided with a distinct ventral cavity in *Gibbaria scabra* as well as *O. ilicifolium* (Fig. 2).

However, these two species are very different in other important morphological characters (see below), and in our opinion they are not congeneric. This conclusion is also supported by molecular information obtained from an ongoing study of the entire tribe (Källersjö et al., in prep). Both species of *Gibbaria* were included in a phylogenetic analysis based on sequences from the *ndh*F and *trn*L-F genes, together with a representive sample of all recognized genera sensu Nordenstam (in press). The analysis placed the two *Gibbaria* species in very different parts of the tree (Fig. 3). *Gibbaria ilicifolia* was found as sister to all Calenduleae save *Garuleum* and *Dimorphotheca*, whereas *Gibbaria scabra* was nested within a group of *Osteospermums*, with *Osteospermum glabrum* N. E. Br. as its closest relative. To ensure that it was not a case of contamination we repeated the DNA extractions, PCR and sequencing, but the result was the same. Analyses using parsimony jackknifing (Farris et al. 1996) or Bayesian inference (Huelsenbeck & Ronquist 2001) resulted completely congruent topologies.

A new monotypic genus is here described to accommodate the southwestern Cape species *Gibbaria ilicifolia*. The generic name *Nephrotheca* is inspired by the reniform cypselas.

Nephrotheca B. Nord. & Källersjö, gen. nov. (Compositae-Calenduleae)

Frutex erectus vel diffusus ramosus usque ad 0.5 m altus glanduloso-hirtellus. Folia alterna sessilia ovato-oblonga ad lanceolata 2–6 cm longa 1–4 cm lata, apice mucronata, margine sinuato-dentata vel denticulata. Capitula solitaria breviter pedunculata heterogama radiata. Involucrum campanulatum; involucri bracteae 10–13 uniseriatae vel subbiseriatae lanceolatae 6–10 mm longae 1.5–2.5 mm latae. Flosculi radii feminei 10–13; ligulae flavae subter plerumque rubro-violaceae. Flosculi disci ♀-steriles, corolla flava quinqelobata. Cypselae homomorphae calvae glabrae incurvae reniformes 4–5 mm longae 2–3 mm latae cavernam ventralem includentes.

Type: *N. ilicifolia* (L.) B. Nord. & Källersjö.

Single species:

Nephrotheca ilicifolia (L.) B. Nord. & Källersjö, comb. nov.

Basionym: *Osteospermum ilicifolium* L., Syst. Nat. ed. 10: 1234 (1759).

Lectotype, designated here: Herb. LINN 1037:9 (LINN). – Fig. 1.

N. ilicifolia is widespread in the southwestern Cape Province including Table Mountain and other parts of the Cape Peninsula, and also on mountain slopes up to ca. 1000 m s.m. northwards to Bains Kloof and French Hoek Mountains and eastwards to Swellendam. It is a smelly glandular shrub or shrublet with flat oblong to ovate leaves with a dentate and scabrid margin. The solitary terminal capitula have phyllaries more or less in a single row, yellow ray-florets, sometimes with a reddish or purple tinge below, and the disc-florets are also yellow.

The genus *Gibbaria* Cass. is now likewise monotypic. *G. scabra* Cass. is a shrublet with a very different habit, with entire, linear to subulate and apically pungent leaves; the involucral bracts are imbricate, and the rays are white above and more or less orange-yellow below.

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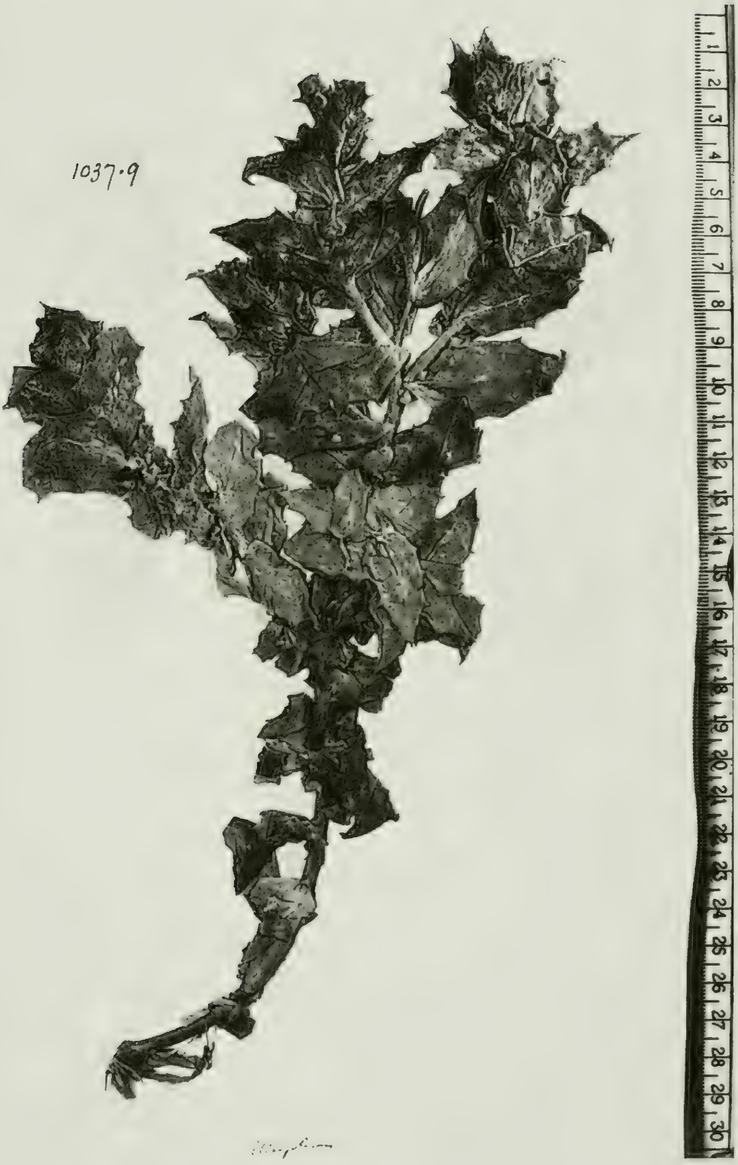

Fig. 1. Lectotype of *Osteospermum ilicifolium* L., generic type of *Nephrotheca*
B. Nord. & Källersjö. LINN 1037:9 (LINN).
"*ilicifolium*" in Linnaeus' handwriting.

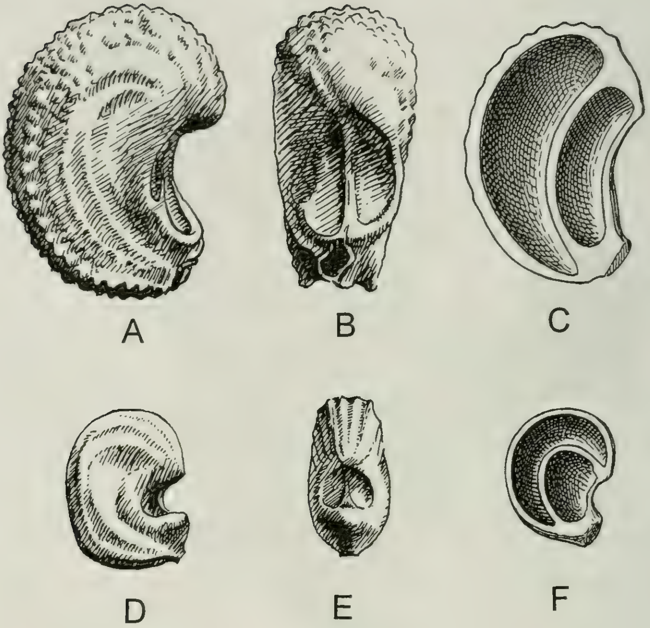

Fig. 2. Cypselas of *Nephrotheca ilicifolia* (L.) B. Nord. & Källersjö (A–C) and *Gibbaria scabra* (Thunb.) T. Norl. (D–F). A, D Radial side. B, E Ventral side. C, F Longitudinal section showing seed cavity (left) and ventral cavity (right). × 6. From Norlindh (1943).

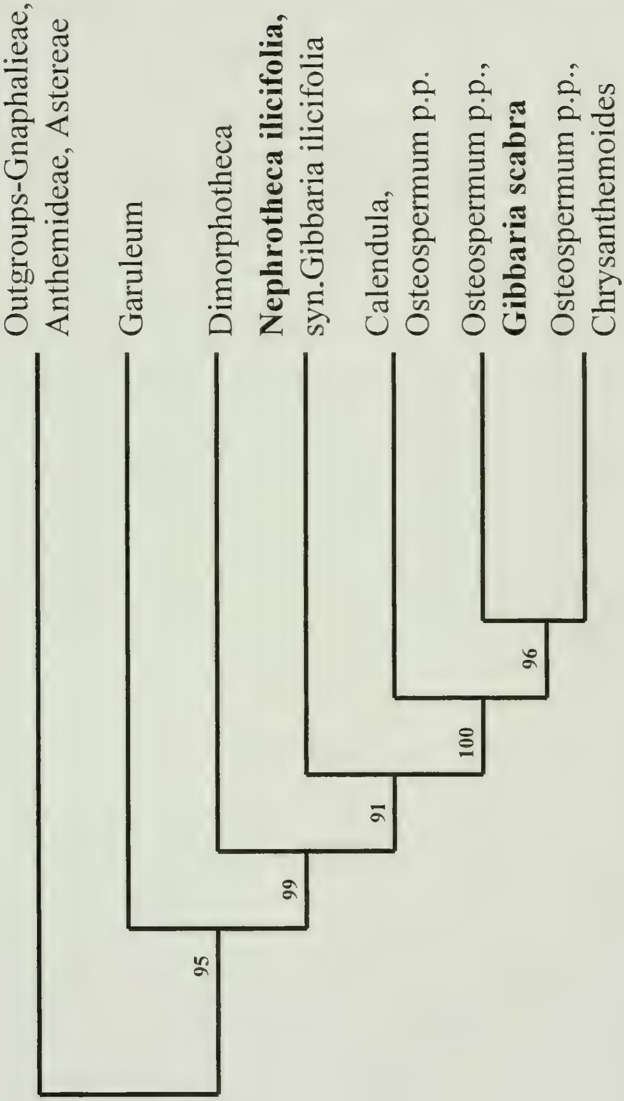

Fig. 3. Simplified parsimony jackknife tree showing the position of *Nephrotheca* in the tribe, based on *ndh*F and *trn*L-F sequence data. Numbers on nodes represent parsimony jackknife frequencies.

Generic revisions in the tribe Calenduleae (Compositae)

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Abstract

The generic limits in the tribe Calenduleae are revised with special focus on the circumscription of *Osteospermum* L. Three new genera from southern Africa, viz. *Monoculus* B. Nord. (2 spp.), *Norlindhia* B. Nord. (3 spp.), and *Inuloides* B. Nord. (1 sp.) are established for elements previously included in *Osteospermum* or *Tripteris* Less. The necessary new combinations are made, and the new species *Norlindhia aptera* B. Nord. is described from southernmost Namibia. The St. Helena endemic *Osteospermum sanctae-helenae* T. Norl. is transferred to *Oligocarpus* Less. as *Oligocarpus burchellii* (Hook.f.) B. Nord., comb. nov. Finally, *Osteospermum pinnatum* (Thunb.) T. Norl. is transferred back to *Dimorphotheca* Vaill. as *D. pinnata* (Thunb.) Harv.

Introduction

Ongoing phylogenetic studies on the Calenduleae and a review of the tribe for the *Families and Genera of Vascular Plants* (Nordenstam, in press) have necessitated revisions of generic limits within this small but intriguing tribe. Especially the genus *Osteospermum* L. is in need of a refined circumscription, a process which was started with the transfer of sect. *Blaxium* to *Dimorphotheca* Vaill. and the resurrection of the genera *Tripteris* Less. and *Oligocarpus* Less. (Nordenstam 1994a, b, Nordenstam 1996). In this paper some further elements are segregated from *Osteospermum* and described as three new genera. A fourth new genus, *Nephrotheca* B. Nord. & Källersjö, is separated from *Gibbaria* Cass. and described in a separate paper (Nordenstam et al. 2006). A molecular study (Källersjö et al., in prep.) is underway to elucidate the phylogeny of the tribe. Especially the affinities and limits between *Chrysanthemoides* Fabr. and *Osteospermum* are still unresolved and will be discussed in forthcoming papers (cf. also Wood & Nordenstam 2004).

Taxonomy and discussion

***Monoculus* B. Nord., gen. nov.**

Osteospermum sect. *Unifenestrata* T. Norl.: Norlindh, Studies in the Calenduleae I: 321 (1943).

Type: *Monoculus monstrosus* (Burm. f.) B. Nord.

Herbae annuae glanduloso-pubescentes vel glabratae. Folia alterna caulina petiolata vel sessilia herbacea sinuato-dentata vel repanda. Capitula laxe corymbosa radiata. Involucri bracteae c. biseriatae margine late albido-scariosae. Flosculi radii feminei flavi vel aurantiaci tubo villoso. Cypselae triquetrae trialatae apice cavernulam includententes unifenestratae. Flosculi disci ♀-steriles, corolla flava lobis atropurpureis nerviis sclerenchymatibus; antherae atratae; stylus apice bifidus.

Annual herbs, glandular-pubescent or glabrescent. *Leaves* alternate, petiolate or sessile, herbaceous, sinuately dentate or lobate. *Capitula* corymbose, radiate. *Involucral bracts* ca. biseriate, with broad scarious margins. *Ray-florets* female, fertile, yellow or orange-coloured; tube hairy. *Cypselas* homomorphic, triquetrous, 3-winged, with apical cavity provided with a single window (fenestra) on the tangential face. Pappus absent. *Disc-florets* hermaphrodite, functionally male; corolla yellow, apically blackish-purple; corolla lobes with lateral sclerenchymatic strands, joining at base of lobes and continuing halfway down the tube. Anther appendage triangular, acute, blackish; filament inserted at junction of corolla tube and lobes, filament collar short, straight, with involute margins, cells with distinct nodular thickenings; endothecial tissue polarized with few indistinct thickenings. Style apically minutely bifid, sterile.

Basic chromosome number: x = 8 .

Two species with a partly sympatric distribution in the western Cape and one extending into southernmost Namibia.

This new genus is related to *Tripteris*, with which it shares the three-winged cypselas and the sclerenchymatic strands in the disc-floret corolla. In *Monoculus* there is only one cypselar window (fenestra), and the generic name alludes to this feature. In *Tripteris* the cypselas are trifenestrate. Further characteristics of *Monoculus* are the annual habit, glandular pubescence, biseriate involucral bracts with broad scarious margins, and the blackish tips of the disc-floret corollas.

1. *Monoculus monstrosus* (Burm. f.) B. Nord., comb. nov.

Basionym: *Calendula monstrosa* Burm. f., Prodr. Pl. Cap. : 28 (1768). – Lectotype (designated here): Herb. Burman, "*Calendula monstrosa* Burm. herb. et prod., donni par Delessert" (G-DC).

Syn.: *Tripteris clandestina* Less., Linnaea 6: 97 (1831); *Osteospermum clandestinum* (Less.) T. Norl.; Norlindh, Studies in the Calenduleae I: 328 (1943). – Holotype: Thunberg s. loco, Herb. Thunberg no. 30713 , "*Calendula hybrida*", fol. 3 (UPS-THUNB). The holotype is annotated "*Tripteris clandestina*" by Lessing (cf. Norlindh 1943: 332).

Illustr.: J. M. Black, Flora S. Australia 4, 1929, Fig. 275; Marloth, Flora S. Afr. 3:2, 1932, Plate 67 Fig. A; Norlindh 1943, Figs. 1 f, 33 a–h.

Erect annual herb 2–5 dm high; stem simple or branching. Leaves herbaceous, 3–6(–10) cm long, 1–3 cm wide, obtuse, margins sinuately dentate or repand. Capitula laxly corymbose or sometimes solitary; pedicels 2–5 cm long, sparsely bracteolate. Involucral bracts 8–10, 5–7 mm long, 2–4 mm wide. Ray-florets 8–10, short, equalling the involucral bracts in length or slightly longer, yellow, with or without a purplish-black basal spot. Cypsela 8–9 mm long.

Chromosome number: 2n = 16 (Norlindh 1963, Chouksanova et al. 1968, Turner 1970).

Distribution: Western Cape from the Cape Peninsula north to Calvinia and L. Namaqualand and extending into southernmost Namibia, eastwards to Swellendam and Oudtshoorn.

Norlindh realized the synonymy of *Calendula monstrosa* and *Tripteris clandestina*, but nevertheless chose the latter epithet because of the better type specimen. He also disliked the epithet *monstrosa* as inappropriate. However, as remarked by Norlindh, the type of *C. monstrosa* is unmistakably the same taxon as *T. clandestina*.

2. *Monoculus hyoseroides* (DC.) B. Nord., comb. nov.

Basionym: *Tripteris hyoseroides* DC., Prodr. 6: 458 (1838).

Syn.: *Osteospermum hyoseroides* (DC.) T. Norl.; Norlindh, Studies in the Calenduleae I: 333 (1943). – Lectotype (designated here): Drège 2737, Cape Prov., L. Namaqualand: between Kouse and Garip (G-DC). Norlindh l.c. cited this specimen as type without further indication of its status.

Illustr.: Norlindh 1943, Fig. 33 j—k.

Erect or ascending annual herb 2–5(–7) dm high, with aromatic odour; stem moderately to richly branching; lower branches ascending. Leaves herbaceous to subcarnose, up to 10 cm long and 2 cm wide, apically obtuse to rounded, margins sinuate-dentate or repand with callous-mucronate teeth. Capitula laxly corymbose, few to many, pedicels up to 10 cm long, bracteolate. Involucral bracts ca. 13, 7–8 mm long, 3–4 mm wide. Ray-florets ca. 13, yellow or orange-coloured, 2–3 times longer than involucral bracts. Cypselas 7–8 mm long.

Chromosome number: 2n=16 (NORLINDH 1963).

Distribution: Northwestern Cape Province: Van Rhynsdorp, Calvinia and L. Namaqualand districts.

This species is readily distinguished from *M. monstrosus* by the long rays, which are twice the length of the involucral bracts or longer, and often orange-coloured.

***Norlindhia* B. NORD., gen. nov.**

Osteospermum sect. *Efenestrata* T. NORL. subsect. *Confusa* T. NORL.

Type: *N. amplectens* (HARV.) B. NORD.

Herbae annuae glanduloso-pubescentes glandibus ad apicem atris. Folia alterna caulina herbacea integra vel sinuato-dentata vel repanda petiolata vel sessilia basaliter semiamplexicaulibus. Capitula corymbosa radiata. Involucri bracteae subuniseriatae villoso-glandulosae. Flosculi radii feminei flavi vel aurantiaci tubo villoso et glanduloso. Cypselae trialatae vel fere exalatae glabrae efenestratae interdum rostratae. Flosculi disci ♀-steriles sparse glandulosi flavi lobis atropurpureis sine venis distincte sclerenchymatibus; antherae calcaratae caudatae; stylus apice bifidus.

Annual herbs, glandular-pubescent with black-tipped glands. *Leaves* alternate, petiolate or sessile, sinuato-dentate or denticulate, base half-clasping. *Capitula* corymbose, radiate. *Involucral bracts* subuniseriate or nearly biseriate, partly overlapping, numerous (ca. 18–21), villous-glandular. *Ray-florets* female, fertile, yellow to orange; tube glandular and villous with multicellular two-tiered (apically 1-tiered) trichomes. *Cypselas* homo- or dimorphic with apical cavity (sometimes small or absent), without fenestra, 3-winged or wingless, some often rostrate. *Disc-florets* functionally male, yellow with purplish-black tips; corolla without sclerenchymatic strands, glandular outside; corolla lobes apically glabrous, with thin margins with thin lateral veins but without sclerenchymatic strands; marginal resin canals present; tube short, glandular. Anthers calcarate-caudate with tails about equalling filament collar in length; endothecial tissue polarized with distinct thickenings; filament collar straight, cylindrical, uniform (without thickened cells); apical appendage triangular-ovate, margined with one distinct cell-row, blackish, acute, midlined with a dark resin duct. Style apex a short cone, minutely bifid or shortly bilobed, with mamilliform papillae, base of cone with a ring or collar of obtuse hairs; shaft with two vascular strands. Ovary glabrous, 2-veined.

Chromosome no. not known.

Three species, NW Cape Province, southern Namibia.

This new genus differs from *Tripteris* by the cypselas with small or even lacking apical cavity without fenestrae, and disc-floret corolla without distinct sclerenchymatic veins. *Norlindhia* is distinct from *Inuloides* (cf. below) by the annual habit with cauline alternate leaves, corymbose synflorescence, presence of non-glandular hairs etc. Distinctions from *Monoculus* are found in the venation of the disc-floret corollas (no sclerenchymatic strands) and cypselar morphology (non-fenestrate).

Key to the species of *Norlindhia*:

1. Cypselas 3-winged 2
   Cypselas without wings (or with rudimentary incomplete wings) ....
   .... 3. *N. aptera* B. NORD.

2. Ray-florets 2–3 times longer than involucral bracts ....
   .... 1. *N. amplectens* (HARV.) B. NORD.

   Ray-florets equalling involucral bracts in length or slightly longer ....
   .... 2. *N. breviradiata* (T. NORL.) B. NORD.

1. *Norlindhia amplectens* (HARV.) B. NORD., comb. nov.

Basionym: *Tripteris amplectens* HARV.; W. H. HARVEY in HARVEY & SONDER, Fl. Cap. 3: 427 p.p. (1865). *Osteospermum amplectens* (HARV.) T. NORLINDH, Studies in the Calenduleae I: 339 (1943). – Lectotype (designated here): DRÈGE 5861, L. Namaqualand (G-DC).

Further syn.: *Tripteris amplexicaulis* sensu DC., Prodr. 6: 457 p.p. (1838), non *T. amplexicaulis* (THUNB.) LESS.; *T. confusa* BOL.; H. BOLUS, Trans. S. Afr. Phil. Soc. 16: 394 (1906); *T. gracilis* J. HUTCH., J. HUTCHINSON, Ann. S. Afr. Mus. 9: 417 (1917).

Illustr.: NORLINDH 1943, Fig. 35 a—l.

N. amplectens is an annual herb to 0.7 m tall, with petiolate to sessile and half-clasping leaves and with richly branching synflorescences of radiate showy capitula. The vegetative parts are glandular-hairy with black-tipped glands. Ray-florets yellow or orange, while the disc-florets are yellow but dark-tipped. Also the anthers have dark tips, especially the apical appendage.

Distribution: Western Cape Province from Van Rhynsdorp and Calvinia throughout L. Namaqualand.

2. *Norlindhia breviradiata* (T. NORL.) B. NORD., comb. nov.

Basionym: *Osteospermum breviradiatum* T. NORL., NORLINDH, Studies in the Calenduleae I: 345 (1943). – Type: SCHLECHTER 8415, Cape Prov., Clanwilliam, 150 m, 1896 (S holotype; isotypes fide NORLINDH 1943 in B, BOL, G, GRA, K, P, PRE, W, Z).

Illustr.: NORLINDH 1943, Fig. 35 m–o.

Annual herb to 0.5 m high, glandular-pubescent. Leaves alternate, petiolate or sessile and half-clasping, herbaceous, elliptic-oblong o oblong-lanceolate, 3–8 cm long, 1–2.5 cm wide. In comparison with the preceding species the capitula are fewer and less conspicuous, with much shorter yellow rays, hardly exceeding the phyllaries in length.

Distribution: Scattered occurrences from Clanwilliam northwards in Calvinia and L. Namaqualand to southernmost Namibia (Merxmüller 1967).

3. *Norlindhia aptera* B. Nord., sp. nov.

Type: Nordenstam & Lundgren 123, Namibia, Warmbad Distr.: Hochstein, isolated kopje 21 km SE of Ai-Ais (= 62 km on Ai-Ais road from road junction 41 km N of Violsdrift), 25.VI.1974, Nordenstam & Lundgren 123 (S holotype, PRE isotype).

Illustr.: Fig. 1.

N. amplectente (Harv.) B. Nord. affinis sed indumento breviori et minus glanduloso, glandibus quoque brevioribus, et praesertim cypselis praecipue exalatis vel interdum aliis rudimentalibus apicalibus et raro simul basalibus instructis.

Coarse annual herb to 1 m high, branching, shortly hirsute and glandular-pubescent, somewhat glutinous, old stems and branches glabrescent; stem to 1 cm thick. *Leaves* alternate, sessile and amplexicaul or shortly petiolate, oblong-oblanceolate to narrowly elliptic-oblong, 3–6 cm long, 1–2 cm wide, entire or shortly and bluntly few-lobed or -dentate, subcarnose, midveined with fainter lateral veins, acute or obtuse and mucronate. *Capitula* numerous in terminal and axillary lax corymbs, radiate, yellow-flowered. Pedicels with narrowly linear to filiform 2–4 mm long bracts. *Involucre* hemispherical; involucral bracts 18–21, nearly biseriate, linear-lanceolate, 6–9 mm long, ca. 1.5 mm wide, acuminate, shortly hirsute and glandular and sparsely setose, with narrow scarious margins. *Ray-florets* ca. 21; tube 1–1.5 mm long, villous with 2-tiered multicellular obtuse trichomes; lamina narrowly oblong–oblanceolate, 9–12 mm long, 1.5–2 mm wide, 4-veined. Style branches narrowly linear, ca. 2 mm long, obtuse. *Cypselas* ellipsoid-obovate, 4–4.5 mm long, 1.2–2 mm wide, terete and usually longitudinally sulcate with a few furrows, glabrous except for some setae along the furrows, later glabrescent or muricate, without wings or some with 3 reduced wings apically and sometimes also basally, with apical cavity without fenestrae (occasional cypselas with 1 or 3 small fenestrae), light greyish-brownish. *Disc-florets* numerous, functionally male. Corolla ca. 4 mm long; tube short, ca. 0.5 mm long, villous; limb narrowly campanulate, sparsely villous especially proximally; corolla lobes triangular-ovate, acute, glabrous (only minutely papillate outside apically), with thin lateral veins with thin sclerenchyma, anastomosing below sinuses and extending down the corolla as thin veins (no distinct sclerenchymatic strands extending down the corolla).

Anthers 2–2.5 mm long, distinctly caudate, apical appendage narrowly triangular, acute, somewhat thickened in the middle; endothecial cells short, polarized (few thickenings on horizontal walls only); filament collar short, uniform. Style apically conical and bifid, sterile. Ovary narrowly oblong, glabrous, 2-veined.

Distribution: Only known from the type collection in southernmost Namibia, where it was found growing in schist and gravel on an isolated kopje.

N. aptera differs from the former two species by the wingless cypselas (rudimentary wings sometimes present), the shorter pubescence with fewer and shorter glands, the mostly entire leaves, and the narrower involucral bracts with narrow scarious margins.

***Inuloides* B. Nord., gen. nov.**

Osteospermum sect. *Efenestrata* subsect. *Tomentosa* T. Norl.

Herba perennis, caudex subterraneus lignosus. Folia rosulata petiolata spathulata vel rotundata integra subcoriacea utrinque albido-tomentosa apice acuta ad rotundata interdum cuspidata. Capitula solitaria scaposa radiata. Involucri bracteae subuniseriatae ad subbiseriatae, interiores margine scarioso-fimbriatae. Flosculi radii feminei flavi vel lutei, in sicco cyanescentes. Cypselae triangulares trialatae, latera rugosa et apicem versus glandulifera; caverna apicalis magna efenestrata. Flosculi disci ♀-steriles flavi. Stylus sterilis apice minute bilobus.

Type: *Inuloides tomentosa* (L. fil.) B. Nord.

Monotypic:

***Inuloides tomentosa* (L. fil.) B. Nord., comb. nov.**

Basionym: *Calendula tomentosa* L. fil.; Linné fil., Suppl. Pl.: 384 (1782).

Syn.: *Tripteris tomentosa* (L. fil.) Less; Lessing, Synopsis gen. Comp.: 90 (1832); *Osteospermum tomentosum* (L. fil.) T. Norl., Norlindh, Studies in the Calenduleae I: 336 (1943). – Holotype: Thunberg s.n., e Cap. B. Spei ad Kafferkuyls rivier, Oct., herb. Thunberg no. 20740 (UPS-THUNB); isotypes: "*Calendula tomentosa*", Thunberg, herb. Montin (S), herb. Swartz (S), "Dahl a Dr Thunberg"(S).

Further syn.: *Osteospermum cuspidatum* DC. Prodr. 6: 463 (1838).

Illustr.: Norlindh 1943, Fig. 34.

Tomentose perennial herb or small subshrub. *Leaves* mainly rosulate, petiolate, spathulate to orbiculate, flat, entire, apically mucronate or shortly cuspidate; petiole base somewhat clasping. *Capitulum* solitary, scapose, radiate. *Involucral bracts* subuniseriate, inner ones with scarious-fimbriate margins. *Ray-florets* female-fertile; lamina yellow but turning blue upon drying, epidermis with elongate convex cells. *Cypselas* 3-winged, with large apical cavity but lacking fenestra, rugose between the wings and apically somewhat glandular-hairy. *Disc-florets* functionally male, yellow; corolla lobes triangular-ovate, with translucent broad margins, small papillae apically, and sublateral thin veins with thickened sclerenchyma; no eglandular hairs, only multicellular glands on corolla and cypselas. Anther apical appendage ovate, blackish, subacute and concave, with distinct margins. Style with obtuse mamillate papillae, style apex bilobed down to the ring of short sweeping-hairs.

Distribution: A single species with scattered localities in the southwestern Cape Province. It is perhaps becoming rare, since there are rather few recent collections (cf. NORLINDH 1943 p. 339). The distribution ranges from Tulbagh and Paarl in the north to Cape Peninsula and Caledon in the south, and eastwards to Mossel Bay. The single record from the Cape Peninsula dates from 1892.

Selected specimens: Caledon, Klynriviersberge am Zwarteberg, August, ZEYHER 3068 (SONDER scripsit, S); Caledon Div., Fernkloof Nature Reserve, Hermanus, 150 m, 1.IV.1983, C. BURMANN 1122 (BOL); Bredasdorp Div., hard stony flats NW of The Poort along the Elim Road, 25.IX.1933, J. P. H. ACOCK 1768 (S); Bredasdorp Div., 2 miles W of Napier, sandy veld, 17.IX.1962, NORDENSTAM 1395 (M, PRE, S); (3420 BC), De Hoop, Potberg Nature Reserve, 1 km NW of Potberg houses at base of mountain, 190 m, 25.VII.1979, C. BURGERS 1996 (PRE); Stellenbosch, Jonkershoek Nature Reserve, 33°59'S, 18°57'E, 19.VIII.1999, A. R. WOOD 410 (S). (3321 DD), Swellendam distr., foothills of Leeurivierberg, 1.IX.1958, ESTERHUYSEN 27871 (BOL); N foothills of Langeberg mountains near Bonniedale, 1300 ft., 30.IX.1983, J. VLOK 720 (PRE). (3421 AB), Riversdale airfield, 215 m, 28.IX.1984, P. BOHNEN 8509 (PRE).

NORLINDH (1943) placed *O. tomentosum* in a subsection of its own within his sect. *Efenestrata*. As the name implies, the cypselas lack fenestrae, although they have an apical cavity which is very large.

The habit of *O. tomentosum* differs from all or most species of *Osteospermum* and *Tripteris*. It is a low perennial with rosulate tomentose leaves and scapose peduncles bearing a single capitulum. Some of the main differences from *Tripteris* are the absence of cypselar fenestrae, the thin non-sclerenchymatic venation of the disc-floret corolla, and the mamillate stigmatic papillae of the styles.

Transfer of *Osteospermum sanctae-helenae* T. NORL. to *Oligocarpus*

***Oligocarpus burchellii* (HOOK. f.) B. NORD., comb. nov.**

Basionym: *Tripteris burchellii* HOOK.f., in MELLISS, St. Helena: 290 (1875). – Holotype: MELLISS No. 6, St. Helena, 1867 (K). An isotype cited from B (NORLINDH 1939: 787, 1943: 184) may not be extant.

Syn.: *Osteospermum sanctae-helenae* T. NORL., Bot. Notiser, 1939: 787 (1939).

Type as above.

This species is endemic to St. Helena. It was recognized as a new species by HOOKER fil., who placed it in *Tripteris* because of the angular cypselas, with three almost wing-like primary angles and three less protruding secondary angles. NORLINDH sank *Tripteris* in *Osteospermum* and re-named the species because of homonymy (NORLINDH 1939, 1943). He did not place the species in subgenus *Tripteris*, however, but grouped it with *O. acanthospermum* and *muricatum* in sect. *Xenismia* of subgenus *Osteospermum* ("*Euosteospermum*").

Although NORLINDH mentioned *O. acanthospermum* as the closest ally of *O. sanctae-helenae*, he pointed out its resemblance and affinity to *O. calendulaceum* in sect. *Oligocarpus*, unassigned as to subgenus. The latter is recognized as a separate genus by the present author, and the St. Helena taxon clearly belongs there on morphological evidence such as habit, involucral and floral characters.

Molecular evidence from ITS and chloroplast sequences also demonstrate a close relationship between *O. sanctae-helenae* and *Oligocarpus calendulaceus* (KÄLLERSJÖ et al., in prep.).

Perhaps also *O. acanthospermum* (DC.) T. NORL. has to be transferred to *Oligocarpus*, where it was placed by BOLUS (1886), and this issue will be further investigated. If this assumption proves correct, *Xenismia* DC. (1836) will become a synonym of *Oligocarpus* Less. (1832).

Transfer of *Osteospermum pinnatum* to *Dimorphotheca*

Osteospermum pinnatum (THUNB.) T. NORL. is anomalous in *Osteospermum* already by its annual habit and profoundly pinnatipartite leaves, uniseriate involucre and especially by the white (non-yellow) rays, which are more or less purplish below. NORLINDH (1943: 191) placed it in a section of its own, *Acanthotheca* (DC.) T. NORL., based on the genus *Acanthotheca* DC. The taxon fits definitely better in *Dimorphotheca*, where it once belonged, as *D. pinnata* (THUNB.) HARV. This species will be further studied in our molecular phylogeny group. *Acanthotheca* DC. (1838) becomes a synonym of *Dimorphotheca* VAILL. (1754; cf. GREUTER et al. 2005).

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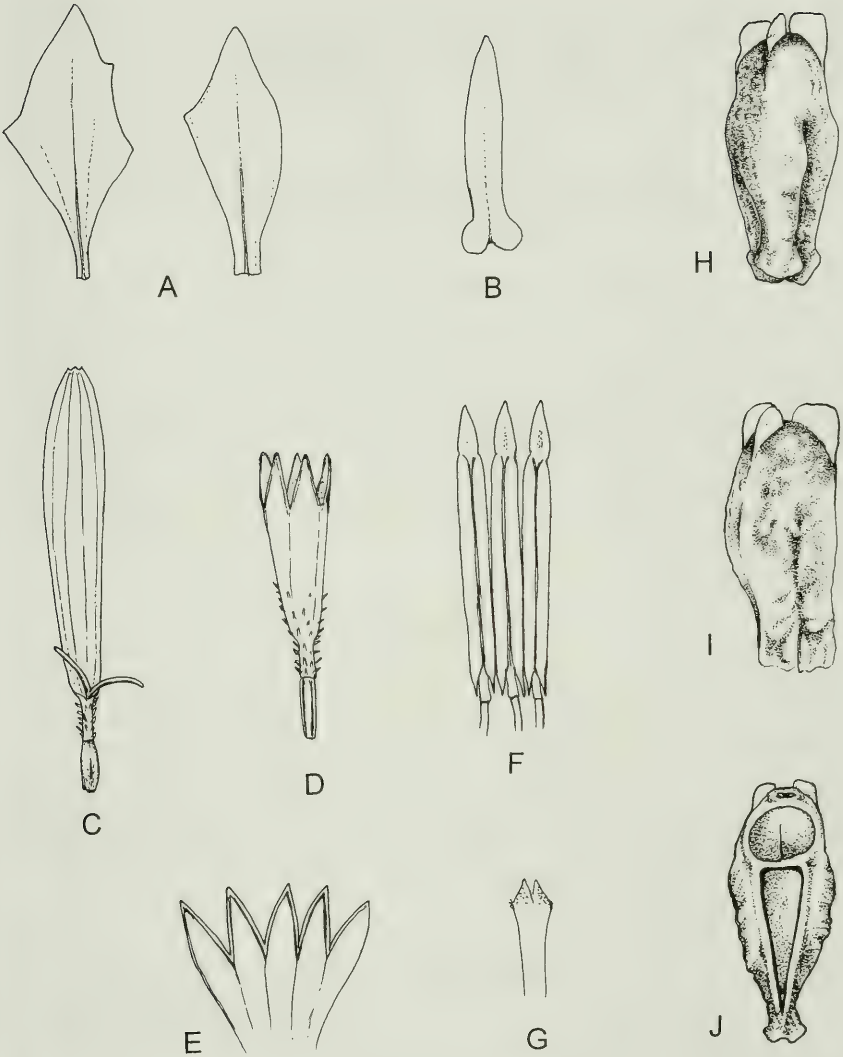

Fig. 1. *Norlindhia aptera* B. NORD.

A: Lower leaves, × 0.7. B: Upper leaf,× 0.7. C: Ray-floret, × 4. D: Disc-floret, × 8. E: Corolla of disc-floret, laid out,× 8. F: Anthers,× 16. G: Tip of disc-floret style, × 16. H, I: Cypselas, × 8. J: Cypsela, longitudinal section, × 8. NORDENSTAM & LUNDGREN 123 (S). Del. B. NORDENSTAM.

New genera and combinations in the Senecioneae of the Greater Antilles

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Abstract

Generic limits in the tribe Senecioneae of the Greater Antilles are revised. Seven new genera are described: *Antillanthus* B. Nord., *Herreranthus* B. Nord., *Lundinia* B. Nord., *Elekmania* B. Nord., *Nesampelos* B. Nord., *Leonis* B. Nord., and *Zemisia* B. Nord. Altogether 33 new combinations are made. As a consequence there are no indigenous species of *Senecio* L. and *Pentacalia* Cass. in Cuba, Hispaniola and Jamaica.

Introduction

The present study is part of an ongoing revision of generic limits in the Senecioneae of the Greater Antilles, particularly Cuba and Hispaniola. It has been necessary to distinguish a number of new genera, some of which are still insufficiently known in all details and deserving a closer study. The treatment of the tribe Senecioneae in the Greater Antilles has up to now or recently been very conservative, with most species remaining in an over-expanded concept of *Senecio* L., plus a number of transfers to the poorly understood and ill-defined genus *Pentacalia* Cass.

The Jamaican Senecioneae were sorted out in a preliminary way by Nordenstam (1978), who recognized two new endemic genera, viz. *Odontocline* B. Nord. and *Jacmaia* B. Nord.These were accepted by H. Robinson in Proctor (1982), who however added the genus *Pentacalia* with three Jamaican species (two described as new and one transferred from *Senecio*).

In the Flora de Cuba vol. 5 (Alain 1963) the tribe Senecioneae was represented by four genera.Three of these are quite small, namely *Erechtites* with one species (plus one variety), *Emilia* with two species, and the monotypic and endemic *Shafera*. In *Senecio* 21 species were recognized, including the type species, *S. vulgaris*, which is a widespread annual weed, although uncommon in Cuba .The other 20 species listed under *Senecio* are all indigenous shrubs or vines, most of them endemic to Cuba, but two of them also occurring on Hispaniola (*S. plumbeus* and *S. trineurus*). One of the

Cuban *Senecios*, viz. S. *almironcillo*, was transferred to the genus *Pentacalia* in 1982 by PROCTOR, and another was recently described as the monotypic *Oldfeltia* B. NORD. & LUNDIN (NORDENSTAM & LUNDIN 2002). The remainder are now disposed in four new genera, and only the occasional weed *S. vulgaris* remains in the genus in the Cuban flora.

In Hispaniola (Haiti and the Dominican Republic) three small endemic genera have been recognized, viz. *Herodotia* URB., *Mattfeldia* URB. and *Ekmaniopappus* BORHIDI. Twelve species of shrubs, small trees or vines have been traditionally been placed in *Senecio* (LIOGIER 1996). One particularly deviating taxon is described elsewhere as the new genus *Ignurbia* B. NORD. (NORDENSTAM 2006). Further genera of the tribe in Hispaniola are the more or less weedy *Erechtites*, *Emilia* and *Crassocephalum*.

Some ten years after ROBINSON and PROCTOR, BORHIDI followed their track and transferred another eleven Cuban species and one from the Dominican Republic to *Pentacalia*. He also described a new species from Cuba as *Pentacalia acunae* BORHIDI, related to *P. almironcillo* (BORHIDI 1992). None of these transferred species is well placed in *Pentacalia*, which in the broad sense of ROBINSON, CUATRECASAS a.o., is a large Andean genus with a northern limit in Costa Rica, where the northernmost outpost of *páramo* vegetation is found. Within the broad concept of *Pentacalia* there are (at least) two distinct groups, treated as subgenera by CUATRECASAS, ROBINSON and others, but better treated as genera, as by JEFFREY, BREMER and myself. *Pentacalia* sensu stricto comprises vines or epiphytes, whereas *Monticalia* C. JEFFREY is a genus of erect shrubs with closely set leaves and terminal synflorescences. These two genera both have an Andean distribution and are not represented in the Caribbean.

The purpose of the present paper is to briefly describe the new genera and make the necessary new combinations. A fuller treatment with keys and discussions will follow, and a global overview of the Senecioneae with a generic key will be published in the *Families and Genera of Vascular Plants* (NORDENSTAM, in press).

New genera and combinations

***Antillanthus* B. NORD., gen. nov.**

Frutices erecti vel scandentes. Folia caulina sessilia vel breviter petiolata linearia vel lanceolata ad oblongo-ovata supra glabra subtus tomentosa. Capitula pauca vel plura corymbosa–cymoso-paniculata discoidea vel interdum radiata. Involucri bracteae uniseriatae. Receptaculum alveolatum glabrum. Flosculi radii feminei vel nulli. Flosculi disci hermaphroditi; corolla resinifera, lobis ovatis. Antherae basi sagittatae vel breviter caudatae. Styli rami lineares intus areis stigmaticis confluentibus apice obtusi pilis brevibus sparsis. Cypselae elliptico-oblongae 8–10-costatae pubescentes. Pappi setae numerosae basi connatae albae persistentes.

Typus: *Antillanthus ekmanii* (ALAIN) B. NORD.

Erect or scandent shrubs 0.5–2 m; branches mostly white-tomentose. *Leaves* cauline, sessile or shortly petiolate, (linear or) lanceolate to oblong-ovate, 3–13 cm long, 1–4 cm wide, entire or sometimes shallowly sinuate-dentate, glabrous (or at least glabrescent) above, densely white- or grey-tomentose beneath; margins usually revolute. *Capitula* few to several in terminal corymbose or cymose-paniculate synflorescences, discoid or rarely radiate, yellow-flowered or rarely white–cream-coloured; peduncles bracteate. *Involucre* cylindrical to narrowly campanulate, calyculate; involucral bracts uniseriate 5–13, oblong–lanceolate, obtuse–acute. *Receptacle* glabrous, alveolate. *Disc-florets* 5–13; corolla tubular below, narrowly campanulate or funnel-shaped above; lobes deltoid to narrowly ovate, midlined, apically subcucullate and papillate. Resin canals often present in corolla and style. Anthers basally sagittate or shortly caudate; apical appendage ovate, obtuse; endothecial tissue radial with elongated cells; filament collar balusterform. Style branches apically obtuse with rather few and short lateral sweeping-hairs; inside with stigmatic areas continuous. *Cypselas* elliptic-oblong, 8–10-ribbed, shortly hirsute. *Pappus* bristles numerous, slender, usually shorter than the corolla, basally connate, white, persistent.

This is the largest genus of the tribe in Cuba, with 17 species presently recognized.

1. *Antillanthus acunae* (BORHIDI) B. NORD., comb. nov.

Basionym: *Pentacalia acunae* BORHIDI, Acta Bot. Hung. 37: 88 ("1992" = 1994).
Type: J. ACUÑA 13412 SV, Cuba, Prov. Las Villas, Sierra de Escambray, in saxosis calcareis montis Pico Potrerillo, 900—930 m, V.1939 (HAC holo.!).

2. *Antillanthus almironcillo* (MAZA GOMEZ) B. NORD., comb. nov.

Basionym: *Senecio almironcillo* MAZA GOMEZ, Anales Hist. Nat. 19: 277 (1890).
Syn.: *Pentacalia almironcillo* (MAZA GOMEZ) G. R. PROCTOR, J. Arnold Arbor. 63(3): 312 (1982).
Further syn.: *Cacalia discolor* GRISEB., non DC.; *Senecio brittonii* GREENM., Field Mus. Nat. Hist. 164, Bot. Ser. 2(8): 323 (1912).
Type: C. WRIGHT 2870, Cuba.

3. *Antillanthus azulensis* (ALAIN) B. NORD., comb. nov.

Basionym: *Senecio azulensis* ALAIN, Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" no. 18: 10 (1960).
Type: ALAIN & M. LÓPEZ FIGUEIRAS 7352, Cuba, Oriente, Sierra Azul, Barracoa, 4.I.1960 (LS holo., SV, "UO" iso.).

4. *Antillanthus biseriatus* (Alain) B. Nord., comb. nov.

Basionym: *Senecio biseriatus* Alain, Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" no. 18: 11 (1960).
Type: Alain 3429, Cuba, Oriente, Sierra de Moa, 25-26.VII.1953 (LS holo., NY iso.).

5. *Antillanthus carinatus* (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio carinatus* Greenm., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 323 (1912).
Syn.: *Pentacalia carinata* (Greenm.) Borhidi, Acta Bot. Hung. 37: 88 ("1992" = 1994).
Type: J. A. Shafer 4079, Cuba, Oriente, Sierra de Moa, Camp San Benito, 900 m, 24.II.1910 (F, NY).

6. *Antillanthus cubensis* (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio cubensis* Greenm., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 324 (1912).
Syn.: *Pentacalia cubensis* (Greenm.) Borhidi, Acta Bot. Hung. 37: 88 ("1992" = 1994).
Type: J. A. Shafer 4084, Cuba, Oriente, Sierra de Moa, Camp San Benito, 900 m, 24.II.1910 (F, NY).

7. *Antillanthus ekmanii* (Alain) B. Nord., comb. nov.

Basionym: *Senecio ekmanii* Alain, Contr. Ocas. Mus. Hist. Nat. Colegio "De La Salle" no. 18: 11 (1960).
Type: Alain, Acuña & López Figueiras 5606, Cuba, Oriente, Sierra de Cristal, en charrascos, 2-7.IV.1956 (LS holo., NY, SV, "UO" iso).

8. *Antillanthus eriocarphus* (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio eriocarphus* Greenm., Torreya 13: 257 (1913).
Syn.: *Pentacalia eriocarpha* (Greenm.) Borhidi, Acta Bot. Hung. 37: 88 ("1992" = 1994).
Syntypes: J. A. Shafer 4149, Cuba, Oriente, from Camp Toa to Camp La Barga, 22-26.II.1910 (F, NY, MO fragment); J.A. Shafer 8257, Camp La Gloria, S of Sierra de Moa, 24-30.XII. 1910 (F, NY, MO fragment).

9. *Antillanthus leucolepis* (GREENM.) B. NORD., comb. nov.

Basionym: *Senecio leucolepis* GREENM., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 324 (1912).
Syn.: *Pentacalia leucolepis* (GREENM.) BORHIDI, Acta Bot. Hung. 37: 89 ("1992" = 1994).
Type: J. A. SHAFER 4146, Cuba, Oriente, Camp Toa to Camp La Barga, 400-450 m, 22-26.II.1910 (F, NY).

10. *Antillanthus moaensis* (ALAIN) B. NORD., comb. nov.

Basionym: *Senecio moaensis* ALAIN, Contrib. Ocas. Mus. Hist. Nat. La Salle 18: 11 (1960).
Syn.: *Pentacalia moaensis* (ALAIN) BORHIDI, Acta Bot. Hung. 37: 89 ("1992" = 1994).
Type: LEÓN & CLEMENTE 23203, Sierra de Moa, Mina Johnson, 20.VII.1947 (LS holo., NY iso.).

11. *Antillanthus moldenkei* (GREENM. ex ALAIN) B. NORD., comb. nov.

Basionym: *Senecio moldenkei* GREENM. & ALAIN, Contrib. Ocas. Mus. Hist. Nat. Colegio "De La Salle", Habana, no. 18: 12 (1960).
Type: ACUNA 12775, Cuba, Oriente, Gran Tierra, Moa, 16.IV.1945 (HAC holo.!)

12. *Antillanthus pachylepis* (GREENM.) B. NORD., comb. nov.

Basionym: *Senecio pachylepis* GREENM., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 325 (1912).
Type: J. A. SHAFER 4008, Cuba, Oriente, Rio Yamaniguey to Camp Toa, 22-26.II.1910 (F, NY).

13. *Antillanthus pachypodus* (GREENM.) B. NORD., comb. nov.

Basionym: *Senecio pachypodus* GREENM., Publ. Field Mus. Nat. Hist. Chicago, Bot. 2: 325 (1912).
Syn.: *Pentacalia pachypoda* (GREENM.) BORHIDI, Acta Bot. Hung. 37: 89 ("1992" = 1994).
Type: J. A. SHAFER 8186, Cuba, Oriente, S of Sierra de Moa, Camp La Gloria 24-30.XII.1910 (NY holotype, F fragment).

14. *Antillanthus saugetii* (ALAIN) B. NORD., comb. nov.

Basionym: *Senecio saugetii* ALAIN, Contrib. Ocas. Mus. Hist. Nat. La Salle 18: 12

(1960).
Syn.: *Pentacalia saugetii* (Alain) Borhidi, Acta Bot. Hung. 37: 89 ("1992" = 1994).
Type: León 12196, Sierra de Imias, Puntón del Mate, 1924 (LS holo., NY iso.).

15. *Antillanthus shaferi* (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio shaferi* Greenm., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 326 (1912).
Syn.: *Pentacalia shaferi* (Greenm.) Borhidi, Acta Bot. Hung. 37: 89 ("1992" = 1994).
Type: J. A. Shafer 3107, Cuba, Oriente, Sierra de Nipe, between Piedra Gorda and Woodfred, 400-500 m, 8.XII.1909 (F, NY).

16. *Antillanthus subsquarrosus* (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio subsquarrosus* Greenm., Ann. Missouri Bot. Gard. 8: 97 (1922).
Type: J. Shafer 3722, Cuba, Oriente, Rio Guayabo, 450-550 m, 21-30.I.1910 (GH, NY, MO fragment).

17. *Antillanthus trichotomus* (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio trichotomus* Greenm., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 326 (1912).
Syn.: *Pentacalia trichotoma* (Greenm.) Borhidi, Acta Bot. Hung. 37: 89 ("1992" = 1994).
Type: J. A. Shafer 3821, Cuba, Oriente, Loma Menquara, 680 m, 1-3.II.1910 (F, NY).

***Leonis* B. Nord., gen. nov.**

Fruticulus scandens glaber praeter pedunculos et petiolos rufo-asperulos. Folia alterna petiolata ovata ad elliptica integra vel interdum trilobata trinervia. Synflorescentiae axillares breves corymbosae. Capitula heterogama radiata vel disciformia . Involucrum calyculatum; involucri bracteae uniseriatae lineis resinosis instructae. Flosculi radii feminei flavi; lamina brevi. Flosculi disci numerosi hermaphroditi, corolla flava quinquelobata, lobis deltoideis vel ovatis ducto mediano resinifero notatis. Antherae basi sagittatae ecaudatae. Styli rami apice obtusi pilis sparsis brevibus lateralibus. Cypselae elliptico-oblongae glabrae (setis sparsis apicalibus repertis) decemcostatae stramineae. Pappi setae numerosae albae basi connatae.

Type: *Leonis trineura* (Griseb.) B. Nord.

Monotypic:

Leonis trineura (Griseb.) B. Nord., comb. nov.

Basionym: *Senecio trineurus* Griseb., Mem. Am. Acad. N. S. 8: 514 (1862).
Syn.: *Pentacalia trineura* (Griseb.) Borhidi, Acta Bot. Hung. 37(1–4): 89 ("1992", prob. 1994).
Type: C. Wright 327, Cuba, Monteverde, Guantánamo (S = isotype!)

Further syn.: *Senecio leonis* ("*Leonis*") Britton & Wilson, Bull. Torrey Bot. Club 50: 50 (1923).

Senecio domingensis Urb., Symb. Antill. 7: 431 (1912).

Syntypes: H. v. Türckheim 3347, Sto. Domingo prope Constanza.

Illustr.: Fig. 1.

Scandent shrub, glabrous in most parts, but young branches, peduncles and petioles rufous-asperulous, and peduncles sometimes finely glandular-papillate below the capitulum; stems striate. *Leaves* alternate on short axillary flowering shoots, ovate to elliptic, 1.5–4 cm long, (0.5–)1–2.5 cm wide, entire or shallowly trilobate or grossly 1–4-dentate, petiolate, herbaceous, three-nerved from near the base; leaf-blade basally cuneate to truncate or occasionally hastate; petiole slender, 1–3 cm long. *Synflorescences* corymbose, terminating the lateral axillary leafy shoots. *Peduncles* slender, 1–4 cm long, with a few linear bracts, asperulous with rufous short trichomes and sometimes apically papillate-glandular. *Capitula* campanulate, heterogamous, radiate or disciform, yellow-flowered. *Involucral bracts* uniseriate, 8–12(–13), narrowly oblong to lanceolate, (1.5–)2–7 mm long, 1–2 mm wide, distinctly 3–5-veined with blackish (often interruptedly) resiniferous veins, apically acute and puberulous, otherwise glabrous or rarely somewhat puberulous throughout. Calyculus bracts 2–5, generally shorter than the phyllaries but varying in size, 5–8 mm long, 0.5–1 mm wide, linear and acuminate, sparsely pubescent with whitish or short rufous trichomes or subglabrous, sometimes with a median resin vein. *Receptacle* slightly convex, shortly fimbrilliferous, but not denticulate or distinctly alveolate. *Ray-florets* female, 1–5(–8), glabrous; tube cylindrical, 2–5 mm long; lamina oblong or narrowly elliptic-oblong, 1–5 mm long, 3–5-veined. Style branches linear, glabrous, obtuse, with separated stigmatic lines. *Disc-florets* 16–24, hermaphroditic. Corolla basally tubular, widening above, 4.5–6 mm long, glabrous, shortly 5-lobed; lobes deltoid–ovate, 0.5–0.7 mm long, with a median subapical dark resin canal, apically subcucullate and ± papillate outside. Anthers 1.5–2.5 mm long incl. appendage, basally sagittate, but ecaudate; apical appendage narrowly ovate-lanceolate; filament collar 'balusterform' (with enlarged cells basally). Style with two dark resin canals, branches linear with continuous stigmatic area inside; base indurated; stylopodium distinct; style branches linear-oblong, ca. 1–1.5 mm long, apically obtuse with few and very short lateral sweeping-hairs or subglabrous. *Cypselas* elliptic-oblong, glabrous (sometimes

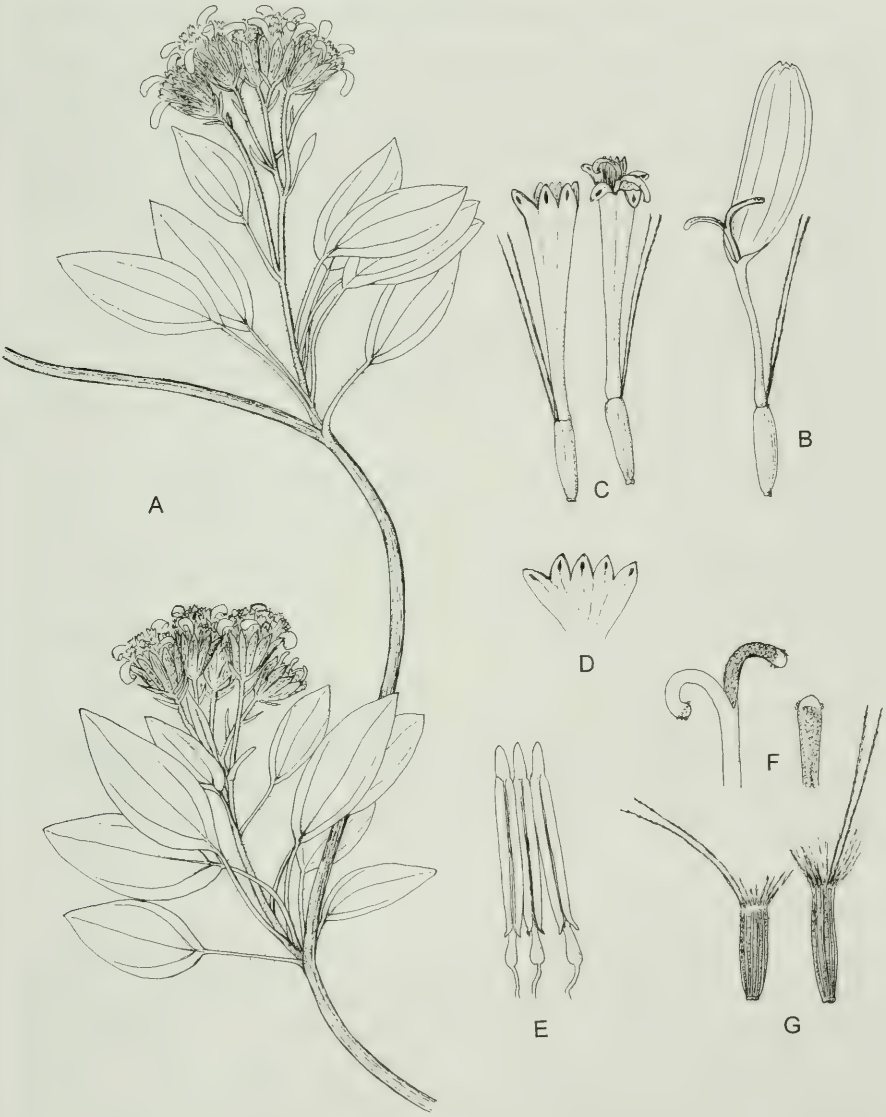

Fig. 1. ***Leonis trineura*** **(Griseb.) B. Nord.**

A Portion of plant, × 1. B Ray-floret, × 6. C Disc-florets, × 6. D Corolla of disc-floret, laid out, × 6. E Stamens, × 12. F Style branches of disc-floret, × 12. G Cypselas, × 6. (A–F L. B. Smith & al. 3238 in S; G Ekman 14504 in S). Del. B. Nordenstam.

a few apical setae), with 10 distinct straw-coloured ribs, otherwise light brown. *Pappus* bristles numerous, pluriseriate, minutely barbellate, white, persistent, basally connate.

Leonis trineura is a vine which occurs in Cuba and Hispaniola (both Haiti and Dominican Republic). The generic name is simply adopted from the epithet of the synonym *Senecio leonis* BRITTON & WILSON. *Leonis* agrees with *Antillanthus* and some other genera in having continuous stigmatic areas on disc-floret styles.The synflorescences are axillary along the rather slender scandent stems.The plant is strongly resiniferous with distinct, often blackish resin ducts in phyllaries, disc-floret corolla and style.

When URBAN described *Senecio domingensis* he remarked that it has no related Antillean taxa ("Nulli alii ex antillanis affinis").There is nothing to distinguish it from *S. trineura*, however, and it is strange that URBAN overlooked this widespread species.

The species is quite variable, which is perhaps not surprising in view of its wide distribution on the two largest islands of the Greater Antilles. The leaf-shape varies from entire and ovate to more or less distinctly trilobate or grossly dentate. The calyculus bracts show much variation in length, from very short to almost the length of the involucral bracts. The number and size of ray-florets is also variable, from one or two to at least five or rarely eight, and some capitula are best described as disciform because of the reduced lamina of the ray-florets.

Leonis trineura is rather similar in vegetative morphology to *Mattfeldia triplinervia* URB., a monotypic genus endemic to Haiti. This is also a scandent shrub with alternate petiolate leaves, which are ovate, entire and three-veined. *Mattfeldia* is distinct from *Leonis* by the bilabiate ray-florets and the narrow and few-flowered capitula with only five phyllaries.

Nesampelos B. NORD., gen. nov.

Frutices scandentes ramis tomentosis glabrescentes. Folia alterna petiolata elliptico-ovata ad obovata integra margine dentata vel denticulata coriacea costata basi rotundata vel obtusa interdum cuneata apice obtusa mucronata supra glabrescentia nitida subtus dense tomentosa. Capitula parva heterogama radiata in synflorescentiis axillaribus corymbose disposita. Involucrum calyculatum; involucri bracteae subuniseriatae vel fere biseriatae lineari-lanceolatae vel anguste oblongae glabrae vel pubescentes. Flosculi radii pauci lamina brevi flava vel cremea-alba. Flosculi disci hermaphrodita; corolla superne campanulata quinquelobata, lobis ovatis vel lanceolatis apice papillatis. Antherae basi obtusae vel sagittatae. Styli rami apice subtruncati pilis eferrentibus numerosis, areis stigmaticis separatis. Cypselae striatae-costatae apicem versus sparse setosae aliter glabrae; carpopodium distinctum. Pappi setae copiosae albae barbellatae basi connatae.

Lianas or scandent shrublets with tomentose glabrescent stems; trichomes soft and flexuous, branching. *Leaves* alternate, petiolate, elliptic-ovate to obovate, 3–7 cm long, 2–4 cm wide, entire with dentate to denticulate margins, midribbed and with lateral veins, coriaceous, base rounded–obtuse or cuneate; apex obtuse mucronate; upper side initially araneose or loosely tomentose, glabrescent and glossy with a reticulate venation pattern, lower side brownish or greyish densely tomentose; petiole short, 3–10 mm. *Capitula* in terminal or axillary lateral corymbs, small, heterogamous, radiate. *Receptacle* flat, shortly denticulate with acuminate scales. *Involucre* calyculate with few small subulate calyculus bracts; involucral bracts subuniseriate to almost biseriate, 5–8, linear-lanceolate to narrowly oblong, glabrous or tomentose; inner bracts with scarious or membranous margins. *Ray-florets* few (2–5), lamina short, to 5 mm long, oblong, yellow, creamy or white, apically 2–3-fid. *Disc-florets* hermaphrodite, 5–13; corolla 4–5 mm long, tubular below, campanulate above, 5-lobed; lobes ovate to lanceolate, apically callous-incrassate or papillate. Anthers basally obtuse or sagittate, ecaudate; apical appendage narrowly ovate–lanceolate. Style branches apically subtruncate with numerous short sweeping-hairs; stigmatic areas separated. *Cypselas* striate or ribbed, ciliate in upper half, otherwise glabrous; carpopodium distinct. *Pappus* bristles numerous–copious, pluriseriate, barbellate, white, basally connate, persistent. Three spp., Hispaniola.

Some characteristics of the genus are the scandent habit, the petiolate entire leaves with dentate or denticulate margins, the shiny reticulate upper surface and tomentose lower side, the small and short-rayed few-flowered capitula, plus characters of styles and anthers.

1. *Nesampelos lucens* (POIR. in LAM.) B. NORD., comb. nov.

Basionym: *Conyza lucens* POIR. in LAM., Encycl. Suppl. 2: 341 (1811).
Syn.: *Senecio lucens* (POIR.) URBAN, Symb. Antill. 3: 413 (1903).
Type: NECTOUX s.n., Haiti (P).
Further syn.: *Conyza domingensis* SPR., Syst. 3: 508 (1826); *Senecio conyzoides* DC., Prodr. 6: 412 (1838).

2. *Nesampelos hotteana* (URB. & EKMAN) B. NORD., comb. nov.

Basionym: *Senecio hotteanus* URB. & EKMAN, Arkiv f. Bot. 23A(11): 93 (1931).
Type: E. L. EKMAN H 7430, Hispaniola, Haiti: Massif de la Hotte, western group, Torbec, Morne Formon, limestone ridge, in thickets, 1400–1500 m, 27.XII.1926 (S holo.!, iso.!)./

Illustr.: Fig. 2.

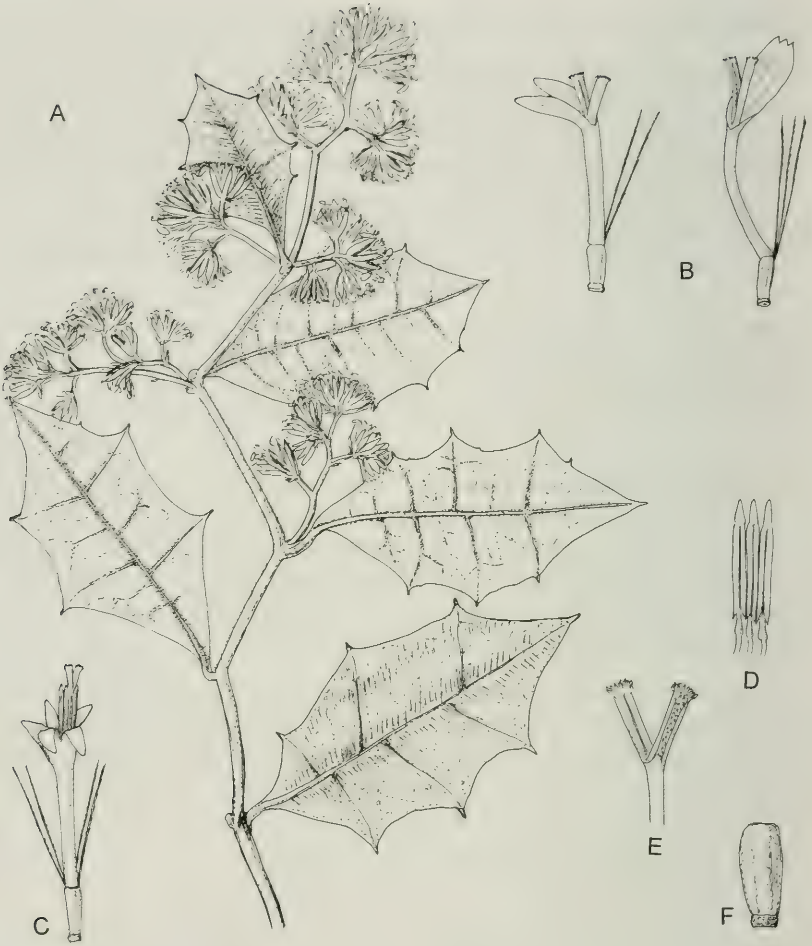

Fig. 2. ***Nesampelos hotteana*** **(Urb. & Ekman) B. Nord.**

A Portion of plant,× 1. B Ray-florets, × 6. C Disc-floret, × 6. D Stamens, × 12. E Style branches of disc-floret, × 12. F Cypsela, × 12. (Ekman H7430 in S, typus). Del. B. Nordenstam.

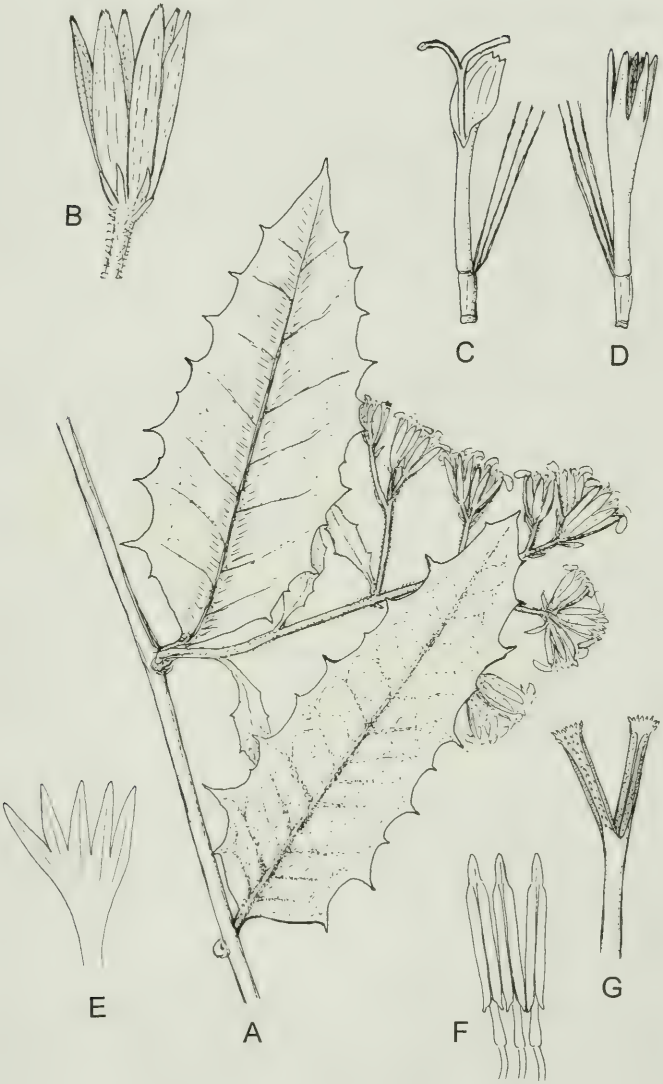

Fig. 3. ***Nesampelos alainii*** **(J. JIMENEZ ALM.) B. NORD.**

A Portion of plant,× 1. B. Involucre, × 6. C Ray-floret, × 6. D Disc-floret, × 6. E Corolla of disc-floret, laid out, × 6. F Stamens, × 12. G Style branches of disc-floret, × 12. (LIOGIER 22276 in JBSD, isotypus). Del. B. NORDENSTAM.

3. *Nesampelos alainii* (J. Jiménez Alm.) B. Nord., comb. nov.

Basionym: *Herodotia alainii* J. Jiménez Alm., Coleccion Conf. Acad. Sci. Rep. Dom. 2(11): 15 (1977).
Syn.: *Ekmaniopappus alainii* (J. Jiménez Alm.) Borhidi, Acta Bot. Hung. 37: 111 ("1992" = 1994).
Type: Liogier 22276, Prov. de La Vega, Constanza, el Convento, 10.I.1975 (Herb. Jiménez holo., JBSD iso.!).

Illustr.: Fig. 3.

Herreranthus B. Nord., gen. nov.

Frutex vel arbor parva ad 3 m alta, rami hornotini araneoso-tomentosi glabrescentes. Folia alterna petiolata oblanceolata vel lanceolata ad anguste elliptico-oblonga usque 20 cm longa et 4 cm lata integerrima acuta supra glabra costata subtus dense tomentosa, petiolus 1–3 cm longus. Capitula plura vel numerosa cymosa–corymbosa discoidea. Involucrum anguste campanulatum calyculatum; involucri bracteae biseriatae plerumque 8 oblongo-lanceolatae tomentosae obtusae. Flosculi hermaphroditi; antherae caudatae; styli rami apice truncati vel subobtusi tantum minute papillati areis stigmaticis confluentibus et lateraliter extensis, dorso papillatis. Cypselae 10-costatae hirsutae; carpopodium distinctum. Pappi setae numerosae albae barbellatae persistentes basi in annulo connatae.

Type: *Senecio rivalis* Greenm.

Monotypic:
Herreranthus rivalis (Greenm.) B. Nord., comb. nov.

Basionym: *Senecio rivalis* Greenm., Field Mus. Hist. Nat. 164, Bot. Ser. 2(8): 326 (1912).
Type: J. A. Shafer 3454, Cuba, Oriente, Sierra de Nipe, near Woodford, 450-550 m, 5.I.1910 (F, NY).

Illustr.: Fig. 4.

Erect shrub or small tree 1.5–3 m high. Stems terete, with large pith, glabrescent; young branches arachnoid-tomentose. *Leaves* alternate, petiolate, oblanceolate or lanceolate to narrowly elliptic-oblong, entire, 7–20 cm long, 2.5–4 cm wide, acute; upper side glabrous, midveined and with fainter lateral veins; lower side densely appressed-tomentose with light grey much-branched curled trichomes, midrib prominent and glabrous; margins somewhat revolute; leaf-blade tapering into a petiole 1–3 cm long. *Capitula* terminal, fairly densely cymose or corymbose, discoid, calyculate. *Involucre* cylindrical to narrowly campanulate, shortly tomentose; involucral bracts 8, biseriate, oblong-lanceolate, 8–10 mm long, (1.5–)2–3 mm wide, shortly tomentose, subcoriaceous with thinner margins, obtuse; calyculus bracts 3–5,

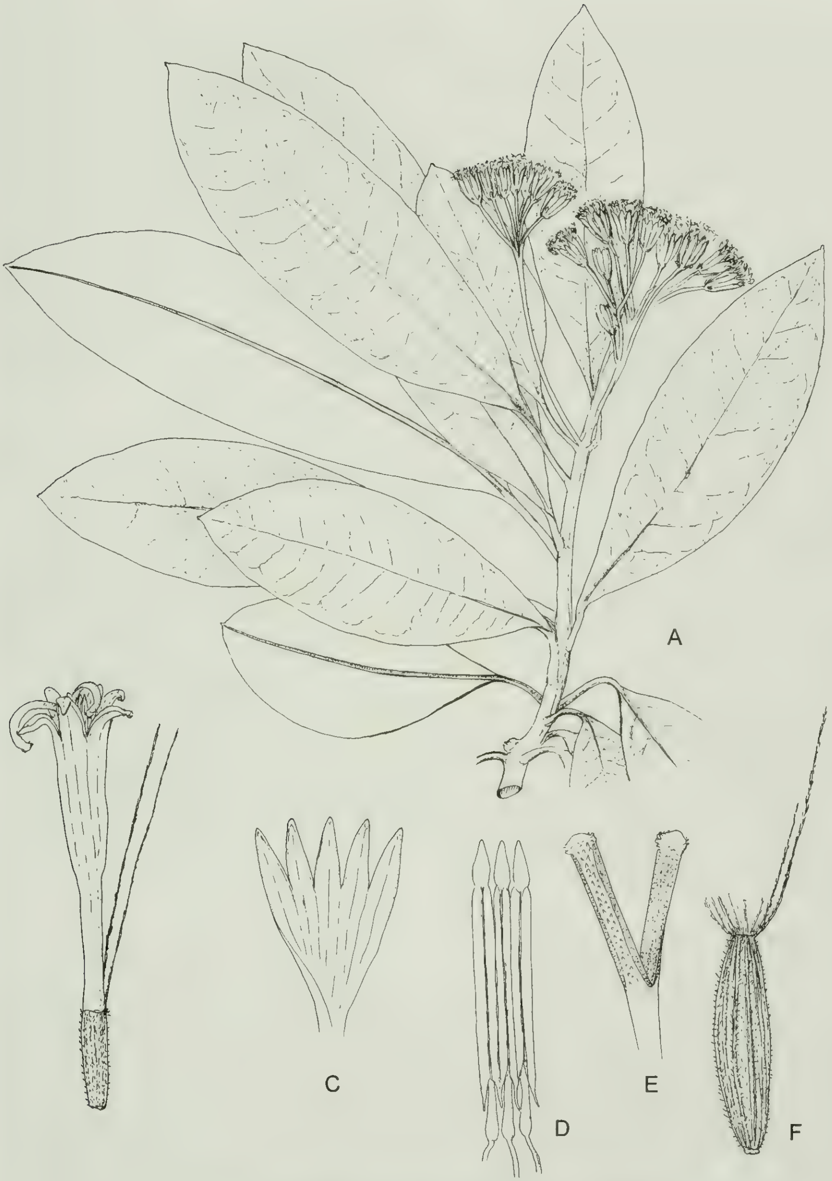

Fig. 4. ***Herreranthus rivalis*** **(Greenm.) B. Nord.**

A Flowering branch, × ½. B Floret, × 6. C Corolla, laid out, × 6. D Stamens, × 12. E Style branches, × 12. F Cypsela, ×6. (A Ekman 4994 in S; B–F Alain & Acuña 8116 in HAC). Del. B. Nordenstam.

lanceolate, 1–3 mm long, appressed, shortly tomentose-lanate. *Receptacle* flat to subconvex, alveolate and minutely fimbrillate (not denticulate). *Disc-florets* 20–25, hermaphrodite; corolla probably yellow, c. 8 mm long, tubular below, narrowly campanulate above, tube c. 3 mm long, lobes narrowly ovate, c. 1.5 mm long, midveined and with marginal veins, acute, apically subcucullate with papillate outside. Anthers 3–3.5 mm long, shortly to distinctly caudate, apical appendage narrowly ovate, obtuse. Style branches c. 2 mm long, narrowly oblong, apically truncate to slightly obtuse, with very short papillae and lacking sweeping-hairs, inside continuously stigmatic with stigmatic areas extending laterally to the outside, non-stigmatic dorsal side beset with small acute papillae. *Cypselas* narrowly oblong, terete, 10-ribbed, densely hirsute with light brown hairs, 4.5–6 mm long, 0.7–1 mm wide; carpopodium distinct. *Pappus* bristles numerous, pluriseriate, straight, glossy white, persistent, 6–7 mm long, basally connate.

I name this new genus for PEDRO PABLO HERRERA of CITMA, Habana, for his eminent knowledge and interest in Cuban Compositae.

The single species of this new genus was previously named *Senecio rivalis* GREENM. It is a large shrub or small tree with big leaves and some unusual floral features. The involucral bracts are usually eight and disposed in two series, a condition not unique in the tribe, although in most genera the phyllaries are more or less uniseriate. The styles of the disc-florets are special by having a continuous stigmatic area inside the style branch and which also extends to the outside, which is dorsally beset with pointed papillae (Fig. 4 E). Furthermore, the apex of the style branches are somewhat obtuse and lacking sweeping-hairs, only provided with few and short papillae. The dense tomentum on adaxial leaf sides consists of much-branched curled hairs, resembling those of some species of the Andean genus *Nordenstamia* LUNDIN (2006), although they are more tightly packed.

Lundinia B. NORD., gen. nov.

Frutex erectus vel arbor parva ad 5 m alta glabra sed partibus juvenilis albo-tomentosis glabrescentibus. Folia alterna petiolata lanceolata ad oblongo-lanceolata integra vel margine plus minusve denticulata. Capitula plura corymbosa radiata. Involucrum campanulatum calyculatum; involucri bracteae uniseriatae plerumque 8 oblongae margine hyalinae. Receptaculum convexum fimbrillatum vel denticulatum. Flosculi radii 5–8 feminei flavi lamina oblonga. Flosculi disci 8–20 hermaphroditi; corolla flava basi tubulosa, lobis anguste ovatis apice subcucullatis papillatis. Antherae caudatae. Styli rami oblongi areis stigmaticis discretis, apice truncato vel leviter obtuso pilis lateralibus brevibus interdum penicillo centrali ornato. Cypselae elliptico-oblongae breviter villosae 10-costatae vel -nervatae. Pappi setae numerosae barbellatae albae corolla breviores.

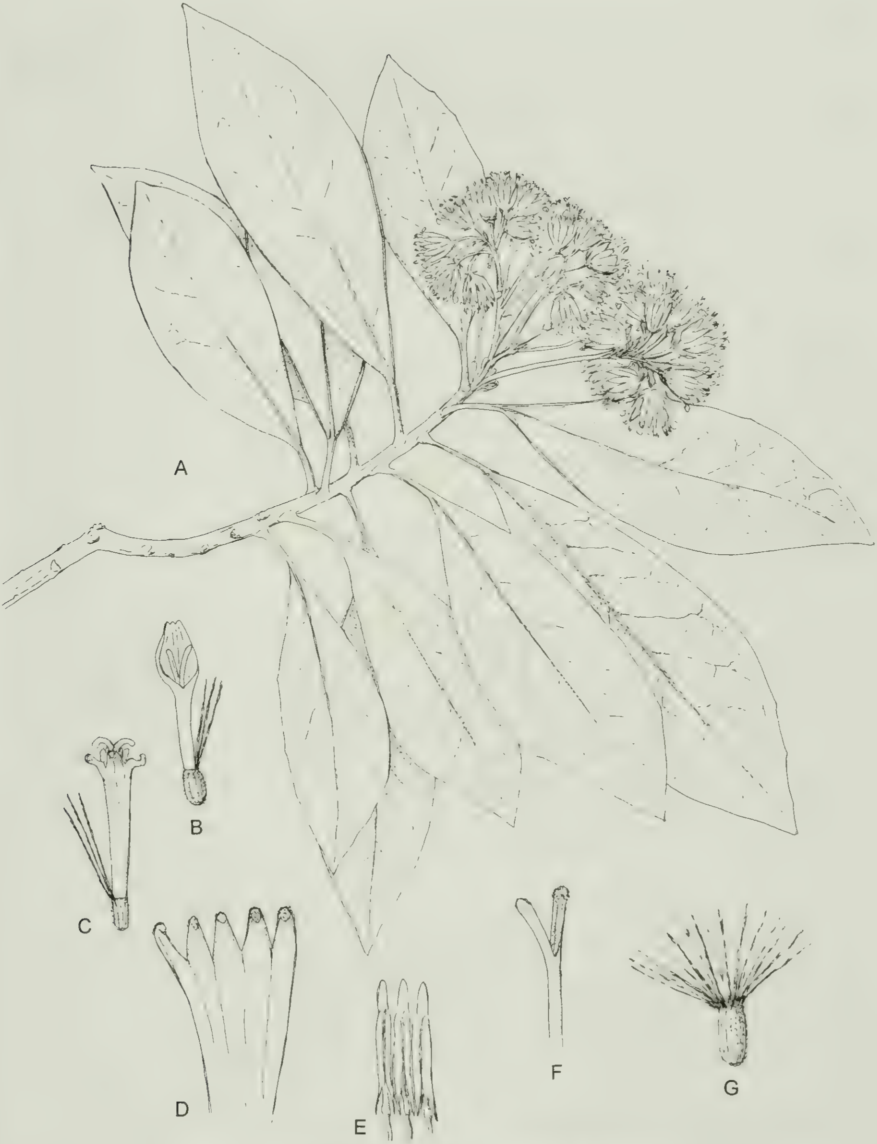

Fig. 5. ***Lundinia plumbea*** **(GRISEB.) B. NORD.**

A Flowering branch, ×1. B Ray-floret,×6. C Disc-floret, ×6. D Corolla of disc-floret, ×12. E Stamens, ×12. F Style branches of disc-floret,×12. G Cypsela, ×12 (NORDENSTAM & LUNDIN 317 in S). Del. B. NORDENSTAM.

Type: *Senecio plumbeus* Griseb., Mem. Acad. N. S. 8: 515 (1862).

The genus is named for my friend and colleague Roger Lundin (1955–2005), who was also a good companion on several field trips in Ecuador and the Caribbean.

Monotypic:

Lundinia plumbea **(Griseb.) B. Nord., comb. nov.**

Basionym: *Senecio plumbeus* Griseb., Mem. Amer. Acad. N. S. 2, 8: 515 (1862). Type: C. Wright 328, Cuba, prope Monte Verde ad ripas rivulorum.

Illustr.: Fig. 5.

Erect shrub or small and slender tree, 2–5 m tall, glabrous or somewhat tomentose especially in young parts. *Leaves* alternate, petiolate, lanceolate or oblong-lanceolate, 5–15 cm long, 1–4 cm wide, entire or with ± denticulate margins, herbaceous, apically acute or somewhat acuminate, basally cuneate. *Capitula* several, corymbose, radiate, yellow-flowered. *Involucre* campanulate, calyculate; *involucral bracts* (5–)8(–13), uniseriate, narrowly oblong, acute, some with hyaline margins. *Receptacle* convex, fimbrillate or denticulate. *Ray-florets* 5–8; lamina oblong–narrowly obovate; style obtuse or sometimes pointed with a tuft of hairs. *Disc-florets* 8–20, hermaphrodite. Corolla lobes narrowly ovate, with or without a faint midline, apically subcucullate, apex and outside somewhat papillate. Anthers caudate; tails at least ½ collar length, sometimes equalling collar in length or longer. Style branches linear-oblong, apically truncate or somewhat obtuse with short lateral pili, sometimes with a median hair tuft; stigmatic areas separated; style branch outside somewhat papillate. *Cypselas* elliptic-oblong, shortly villous, ca. 10-veined. *Pappus* bristles numerous, slender, white, barbellate, shorter than the corolla.

Vernacular name (Cuba): Retama árbol (Alain 1963).

This species is found on Cuba and on Hispaniola. It is a large-leaved shrub or slender tree between 2 and 5 meters tall. Some of the most characteristic features are the separated stigmatic areas of the disc-floret style, the caudate anthers, and the denticulate receptacle.

Apparently just one variable species, occurring on both islands.

Elekmania **B. Nord., gen. nov.**

Frutices vel suffrutices plerumque resiniferi. Folia alterna petiolata integra vel margine dentato-lobulata subtus tomentosa supra glabra vel glabrescentia.Capitula plura vel numerosa in synflorescentiam terminalem disposita radiata vel interdum discoidea. Involucri bracteae subuniseriatae.Flosculi radii pauci feminei flavi. Flosculi disci numerosi hermaphroditi; antherae ecaudatae sed plerumque sagittatae. Styli rami

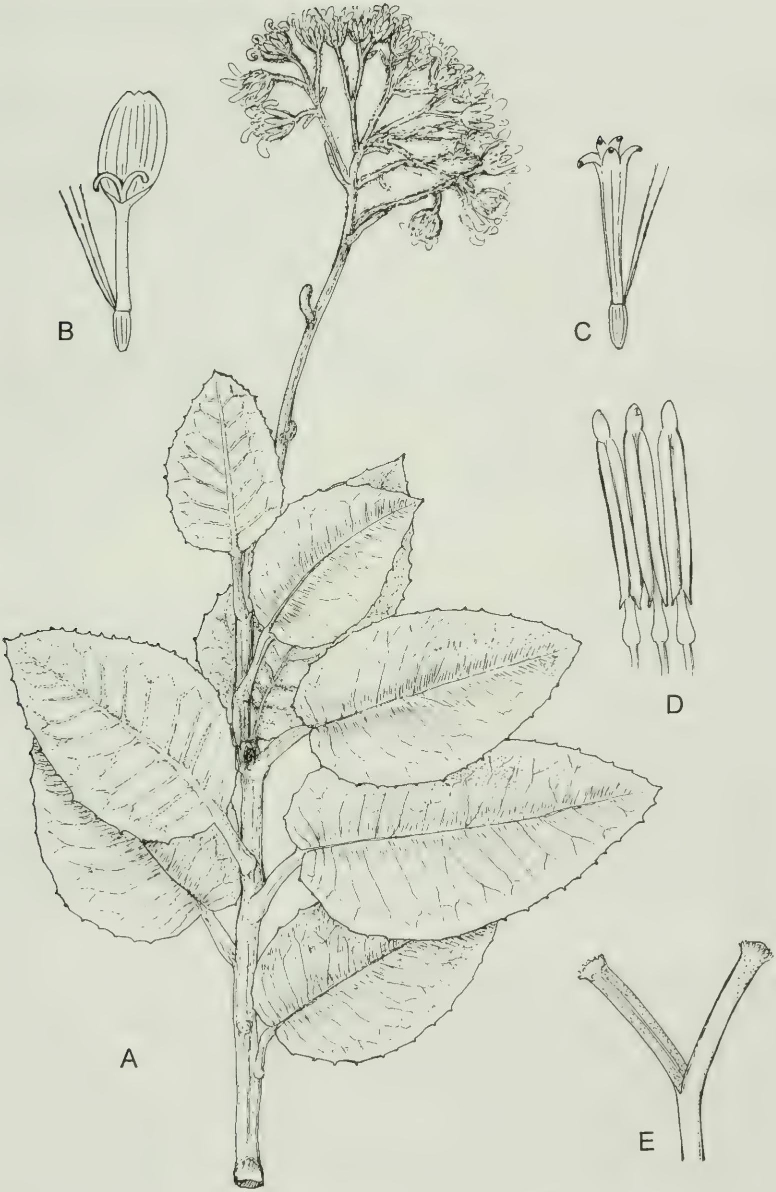

Fig. 6. ***Elekmania buchii*** **(Urb.) B. Nord.**

Flowering branch, ×½. (Ekman H1395 in S). Del. B. Nordenstam.

truncati vel subobtusi pilis brevibus, areis stigmaticis separatis. Cypselae glabrae vel hirsutae 8–10-costatae. Pappi setae numerosae barbellatae albae.

Shrubs or subshrubs, sometimes strongly resiniferous. *Leaves* alternate, petiolate, entire or with dentate-lobulate margins, usually tomentose below, glabrous or glabrescent above. *Capitula* several to numerous in lateral or terminal corymbose or cymose synflorescences, radiate or sometimes discoid, yellow-flowered. *Receptacle* flat, glabrous, minutely alveolate. *Involucre* campanulate–cup-shaped; involucral bracts subuniseriate or sub-biseriate, 5–13, tomentose and midribbed, inner with scarious margins, narrowly oblong. *Ray-florets* 1 to several, female, yellow. *Disc-florets* numerous, hermaphrodite; corolla tubular, widening above, 5-lobed; corolla lobes narrowly ovate to lanceolate, midveined, often with resin, apically papillate. Anthers sagittate to shortly caudate; apical appendage ovate–lanceolate, obtuse. Style branches truncate or somewhat obtuse with short sweeping-hairs; stigmatic areas separated. *Cypselas* narrowly oblong, glabrous or hirsute, 8–10-ribbed; carpopodium distinct. *Pappus* bristles numerous, slender. Circa 10 spp., Hispaniola.

Type: *Elekmania barahonensis* (Urb.) B. Nord.

The genus is named for E. L. Ekman, eminent explorer of the flora of Cuba and Hispaniola in the last century. This brings the number of generic names in honour of Ekman to nine (*Ekmania*, *Ekmanianthe*, *Ekmaniocharis*, *Ekmaniopappus*, *Ekmanochloa*, *Ekmanomyces*, *Elekmania*, *Manekia*, *Myrtekmania*). Only Adolf Engler can match this record in generic eponymy.

Elekmania is the largest senecioid genus in Hispaniola, with nine species, plus perhaps one or two undescribed. Two species, viz. *S. samanensis* and *fuertesii* were described by Urban as having homogamous capitula, but the material examined of these species is consistently radiate. A few species, like *E. haitiensis* are truly discoid, however.

1. *Elekmania barahonensis* (Urb.) B. Nord., comb. nov.

Basionym: *Senecio barahonensis* Urb., Arkiv Bot. 23A(11): 91 (1931).
Syn.: *Pentacalia barahonensis* (Urb.) Borhidi, Acta Bot, Hung. 37: 88 ("1992", prob. published in 1994).
Type: Ekman H 6795, Santo Domingo: Cordillera de Bahoruco, Sierra de los Comisarios, in pinelands, common above 1800 m, 29.VIII.1926 (S holo.! iso.!).

2. *Elekmania buchii* (Urb.) B. Nord., comb. nov.

Basionym: *Senecio buchii* Urb., Fedde Repert. 17: 407 (1921).

Type: Buch 2031, Haiti, Morne Tranchant, in sylva aprica, 1800 m alt. (B destroyed?).

Illustr.: Fig. 6.

This striking species with a characteristic habit is strongly resiniferous in many parts, even in the florets.

3. *Elekmania fuertesii* (Urb.) B. Nord., comb. nov.

Basionym: *Senecio fuertesii* Urb., Symb. Antill. 7: 558 (1913).
Type: Fuertes 1743, Santo Domingo: Prov. De la Vega in Loma Rosilla, 2500 m (B destroyed?).

This was described as having homogamous capitula (also maintained in Liogier 1996), but all material later collected (in Cordillera Central) are shrubs with heterogamous radiate capitula.

4. *Elekmania haitiensis* (Krug & Urb.) B. Nord., comb. nov.

Basionym: *Senecio haitiensis* Krug & Urb., in Urban, Symb. Antill 1: 469 (1900).
Type: Picarda 1065, Haiti, prope Port-au-Prince in alpestribus (B destroyed?).

This species has a distinctive habit, being a suffrutescent liana, described as "Spreizklimmer" or "trepadora", with linear leaves and small discoid capitula. Urban (1900) remarked: "Species distinctissima, nulli alii arctiis affinis". This may be true, but at least provisionally the species is grouped here with the majority of Hispaniolan taxa in the new genus *Elekmania*. In floral morphology the species agrees with others in this genus. The leaves are not unlike those of *E. kuekenthalii*, only distinctly narrower.

5. *Elekmania kuekenthalii* (Urb. & Ekm.) B. Nord., comb. nov.

Basionym: *Senecio kuekenthalii* Urb. & Ekm., Arkiv Bot. 23A(11): 92 (1931).
Type: Ekman H 9491, Haiti: Massif des Matheux, l'Arcahaie, Caye Nicolas, hillside, 600 m, 11.I.1928 (S holo.! iso.!).

6. *Elekmania marciana* (Urb. & Ekm.) B. Nord., comb. nov.

Basionym: *Senecio marcianus* Urb. & Ekm., Arkiv Bot. 23A(11): 93.
Type: Ekman H 8078, Haiti, Massif de Matheux, St.-Marc, southern slope of Morne

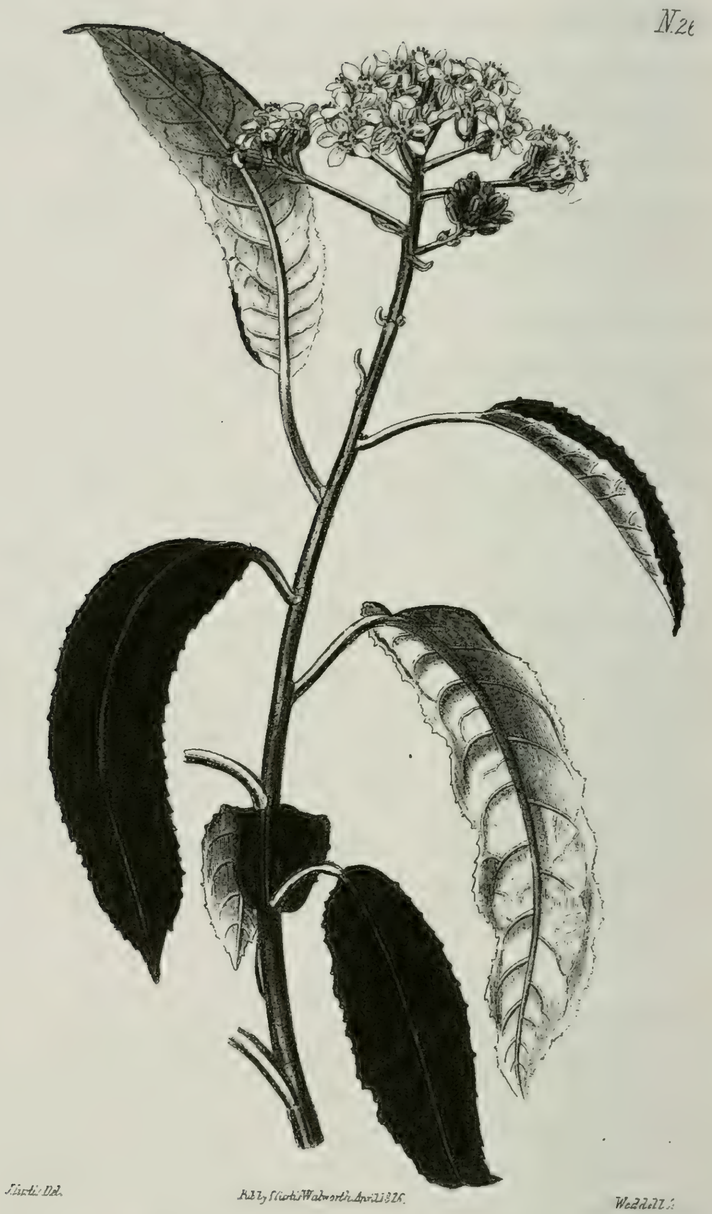
N.26
J.Curtis Del.
Pub by S.Curtis Walworth April 1 1826.
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Fig 7. ***Zemisia discolor*** **(Sw.) B. Nord.**
From Curtis's Bot. Mag. Plate 2647 (1826, as *Cineraria discolor*).

Haut de St.-Marc, steep slope of Morne Long, c. 1000 m, 8.V.1927 (S holotype!).

The type specimen is poor and "longe defloratus" (citation from Ekman's handwritten label which also says "*Senecio* n. sp."). However it clearly belongs in the genus and may be closest to *E. stenodon.*

7. *Elekmania picardae* (Krug & Urb.) B. Nord., comb. nov.

Basionym: *Senecio picardae* Krug & Urb., Symb. Antill. 1: 469 (1900). Type: Picarda 632, Haiti, in alpestribus prope Furcy (B destroyed?).

8. *Elekmania samanensis* (Urb.) B. Nord., comb. nov.

Basionym: *Senecio samanensis* Urb., Fedde Repert. 18: 374 (1922). Type: Abbott 1301, Santo Domingo, in peninsula Samaná prope Lajana, in insula parva San Gabriel (B destroyed?).

Ekman made three good collections in the area of the type locality in 1930. His specimens have radiate capitula, and Urban's statement that the capitula are homogamous is no doubt a mistake. A neotype may have to be selected from Ekman's collections.

This species shares the generic characters of resin canals in corolla, separated stigmatic areas of disc-floret styles, and the habit is similar to that of *E. stenodon.* The cypselas are sparsely setose apically, like in most members of the genus.

9. *Elekmania stenodon* (Urb.) B. Nord., comb. nov.

Basionym: *Senecio stenodon* Urb., Arkiv Bot. 17(7): 65 (1921). Type: Ekman H 184 a, Haiti, Morne de la Hotte, in declivibus sept.-orient. in montibus sylvaticis cr. 800 m alt., 11.VI.1917 (S holotype!).

Urban also described a variety *deglabratus*, which is a single specimen (Ekman H 1846 in S, holotype!) with abnormal leaves, deformed in shape and lacking pubescence on the lower side. This is regarded as an aberration not worthy of taxonomic distinction.

***Zemisia* B. Nord., gen. nov.**

Frutex erectus tomentosus. Folia alterna petiolata anguste ovata ad lanceolata margine denticulata vel subintegra supra glabrescentia subtus dense albo-tomentosa. Capitula numerosa corymbosa radiata. Involucrum campanulatum calyculatum; bracteae uniseriatae. Flosculi radii plerumque 5 feminei albi. Flosculi disci hermaphroditi; corolla cremea quinquelobata, lobis linea mediana instructis apice incrassatis. Antherae caudatae flavae. Styli rami subtruncati pilis apicalibus paucis brevibus, areis stimaticis separatis. Cypsela 8-nervia papillato-villosa; carpopodium distinctum. Pappi setae numerosae albae barbellatae persistentes.

Erect, diffuse or divaricate shrub 1–4 m high, tomentose throughout, but leaves glabrescent adaxially. *Leaves* alternate, petiolate, narrowly ovate to lanceolate, 5–13 cm long, 1.5–4 cm wide, subcoriaceous, with denticulate to subentire margins, midribbed and pinnately veined, apically acute to subobtuse, base rounded or subcordate; upper side becoming glabrous and shiny, lower side persistently densely white-tomentose. *Capitula* numerous in terminal corymbose synflorescence, radiate. *Involucre* cupshaped-campanulate, ca. 0.5 cm wide and high, calyculate; involucral bracts uniseriate, 8–13. *Receptacle* glabrous, minutely alveolate. *Ray-florets* 3–6 (often 5); lamina oblong, 2–3 mm long, white. *Disc-florets* hermaphroditic, ca. 10–15; corolla cream or yellowish; lobes distinctly midlined, apically thickened. Anthers distinctly caudate, yellow. Style creamy white; style branches subtruncate with few short pili abaxially; stigmatic areas separated. *Cypsela* oblong, 2–2.5 mm long, 8-nerved, shortly villous with papilliform white obtuse mucilaginous hairs; carpopodium distinct. *Pappus* bristles numerous, ca. biseriate, 3–4 mm long, white, barbellate, persistent. One sp., Jamaica.

According to ADAMS (1972) the flowerheads are fragrant.

Zemisia discolor (SW.) B. NORD., comb. nov.

Basionym: *Cineraria discolor* SWARTZ, Prodr. Veg. Ind. Occ.: 114 (1788). Syn.: *Senecio discolor* (SW.) DC., Prodr. 6: 412 (1838); *Pentacalia discolor* (SW.) H. ROB., J. Arnold Arbor. 63(3): 311 (1982).

Lectotype (here designated): SWARTZ, Jamaica, "*C. discolor*" [SWARTZ scripsit] (S).

Illustr.: Curtis's Bot.Mag. t. 2647 (1826); Fig. 7.

Eponymy: The generic name is derived from 'zemis', the images made by the Taino people in the Greater Antilles, as representations of one of their gods, named 'Zemi'.

The affinities of this distinctive taxon are still unclear. ADAMS (1972) pointed to *Senecio almironcillo* (now in *Antillanthus*, cf. above) as the closest relative, but more probably some other genera are closer, such as *Mattfeldia*, *Nesampelos* and *Ekmaniopappus*. Two more Jamaican species were referred to *Pentacalia* by H. ROBINSON in PROCTOR (1982), viz. *P. inornata* H. ROB. and *P. subdiscolor* H. ROB. If they belong in *Zemisia* I cannot tell at this moment, only that they are not well placed in *Pentacalia*. These matters will be further investigated and discussed in forthcoming papers.

Acknowledgement

Many thanks to Mr. John Pruski and Dr. Thomas A. Zanoni for providing me with references and copies of protologues of a number of species.

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Lectotypification of names of *Hieracium* sect. *Hieracium* and sect. *Vulgata* based on material from southern Sweden

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Dedicated to Prof. Bertil Nordenstam, *whose early interest in botany and the Compositae was founded by his uncle, the Hieracium-expert* Sten Nordenstam, *on the occasion of his 70th birthday on February 20, 2006.*

Abstract

Lectotypes for 94 combinations in *Hieracium* based on material from the Swedish provinces of Götaland and eastern Svealand are selected and presented.

Introduction

The aim of the present study has been to select lectotypes for all nomenclatural combinations of taxa currently placed in *Hieracium* sect. *Hieracium* and *H.* sect. *Vulgata* (including the '*bifidum*-group') described from material (at least in part) collected in the Götaland province or the eastern part of the Svealand province in southern Sweden. All species of these groups known from this area have recently been treated and described in preliminary regional monographs (Tyler 1998, 2002a,b, 2003a,b, 2004a, 2005). Some of the relevant combinations have already been typified by Sennikov (2003) and Tyler (2000, 2004b) but a large number of combinations remain. Of these, all combinations at the rank of variety or above, except those described by Zahn and a few of the oldest combinations in the group made by E. Fries and C.J. Lindeberg (as discussed below), are analysed and typified below. In most cases, selecting lectotypes for these combinations has been relatively straightforward since the original material is clearly indicated in the protologues, large parts of it has been refound in Swedish public herbaria and the material has been found to conform with the current usage of the combinations concerned (if any). However, a few somewhat more complicated cases are discussed and explained in some detail below. Some particularities relevant for this study concerning the nomenclature and typification of Scandinavian *Hieracia* have previously been described and discussed by Tyler

(2000) and SENNIKOV (2003). Some of the original material have been distributed in various series of exsiccata, and printed labels, often with somewhat emended text, have then been added, but all specimens are here quoted by their original, usually hand-written labels (when extant).

Among the combinations in this group that will still remain to lectotypify, those made by ZAHN (1921-23) should be lectotypified with material in the exsiccata of DAHLSTEDT as directly or indirectly indicated in the protologues. Unfortunately, most probably none of the duplicates of these exsiccata actually seen by ZAHN survived the second world war. However, in such cases the ICBN (Article 9.2 Note 2c) allows for the selection of lectotypes from the remaining duplicates (isosyntypes) of these exsiccata (e.g. those present in S). Since the exsiccata of DAHLSTEDT obviously have been compiled with great care and are highly homogeneous this should not meet any particular problems. However, since there is a large number of combinations made by ZAHN based on material from throughout Scandinavia distributed in the exsiccata of DAHLSTEDT I consider it appropriate to treat these together in a future separate study.

Concerning the few old and important combinations of E. FRIES and C.J. LINDEBERG that are still left untypified (e.g. *H. diaphanum* FR., *H. vulgatum* FR. and *H. stenolepis* LINDEB.) they all represent complicated cases where no obvious original material has been refound and where the extant material of these authors for various reasons has to be interpreted with great care. However, I am currently working on most of these cases and they will be the topic of separate publications in the near future.

Lectotypifications

H. acidotum DAHLST. (1892b exs. I: 18-20 index) **ssp. *sematolepis*** JOHANSS. (1900 p. 13).

Lectotype selected here: 'Vsm. Hällefors s:n, vid ett torp nära Gillershöjden; 20/6 1898; leg. K. JOHANSSON' in S.

Note: This combination is a taxonomic synonym of *H. caesitium* (NORRL.) BRENNER (1892) and *H. christianense* (DAHLST. ex STENSTR.) JOHANSS. & SAM. (1923–26) and this also became the view of its author as indicated by a determination strip from 1924 attached to the lectotype.

H. acromadarum SAM., in JOHANSS. (1920 p. 65).

Lectotype selected here: 'Sudermannia, Strängnäs, Eldsund; 17 juni 1904; leg. GUNNAR SAMUELSSON' in S. The specimen has first been identified as '*H. silvaticum* * *spilophyllum* DAHLST. [nom. nud.]' but later changed to *H. acromadarum* by SAMUELSSON.

H. albinotum Dahlst. ex Johanss. (1907 p. 10).

Lectotype selected here: 'Uppl. Dannemora; 31/7 1900; Leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. XIV: 48; with emended printed label) in S.

H. anfractum* ssp. *eurycybe Dahlst. (1894 p. 150).

Lectotype selected here: 'Småland; Heljaryds ängar på inskränkt lokal (torr mark) 7/7 1884; K. Johansson' in S.

Note: This combination is a taxonomic synonym of *H. acrochristum* Dahlst. ex Johanss.

H. anisotomum Johanss. & Sam. (1920 p. 9).

Lectotype selected here: 'Västmanland: Västanfors, Fagersta, löväng; 16/6 1917; leg. Gunnar Samuelsson' in S.

H. arrosiforme Dahlst., in Johanss. & Sam. (1920 p. 32).

Lectotype selected here: 'Söderml. Strengnäs, Domprosthagen. 29/6 1899; Eugenie Köhler' (Ex. Dahlstedt, Herb. Hierac. Scand. XI: 50; with printed label with the site emended to "Långberget" and the date changed to "30/6 1897") in S.

H. badiellum E.G. Almq. (1955 p. 179).

Lectotype selected here: 'Upl.: Dannemora; 28/7 1890; H. Dahlstedt; *H. badiellum* Er. Almq.; vide Sv. Bot. Tidskr. 1955; Orig. in S.

H. cacuminatum (Dahlst.) Dahlst. (1899, exs. XI: 67).

Bas.: *H. anfractum* ssp. *cacuminatum* Dahlst. (1894a p. 151).

Lectotype selected here: 'Småland, Fagerhults socken i en trädbeväxt och bergig äng invid Fagerhults herrgård. 16/7 1883; K. J. Lönnroth' in S.

H. caesiiflorum Almq. ex Norrl. (1888 p. 96).

Descr. orig. Almq. (1881 p. 15) pro '*H. silvaticum* subsp. *5*'.

Lectotype selected here: 'Upl. Vaxholm - Skarpö; 1879; S. Almquist' in S.

Epitype selected here: 'Upland, Tibble. 1872; S. Almquist (det. H. Dahlstedt 1890)', the left specimen on the sheet in S.

Note: This case is somewhat complicated. The name was first validated by Norrlin (1888), but he quoted "Almqv." as author and this should be interpreted as an indirect reference to '*H. silvaticum* subsp. *5*' in Almquist (1881). Thus, the description given by Almquist (1881) is the original description and protologue. Several localities and gatherings are mentioned in this protologue but the one here selected as lectotype is the only one extant today (as far as could be ascertained). However, the lectotype gathering consists of two specimens apparently collected late in the season and thus not very useful for determination. Therefore, the selection of an epitype is appropriate and the one selected here was collected by the author at a site mentioned in the protologue, although this particular specimen was apparently not identified with this species until later. (However, the extant label of the epitype is in DAHLSTEDT's hand and since the original label is missing it is indeed possible that the specimen was originally referred to this species by its collector and author!).

H. caesionigrescens (FR. ex STENSTR.) DAHLST. (1892b exs. I: 21).

Bas: *H. silvaticum* ssp. *caesionigrescens* FR. ex STENSTR. (1889 p. 13).

Lectotype selected here: 'Dalsland, Steneby skn, mellan Långed och Baldersnäs 25/7 1888; K. O. E. STENSTRÖM' in S.

Note: The epithet *caesionigrescens* on this plant appeared already in FRIES (1847) but was not validly published since the species was not definitely accepted there.

H. canipediforme DAHLST. (1921 p. 4).

Lectotype selected here: 'n. sp.; Uppl.: Gräsö par., ins. Räfsten, 8-9/7 1915; Leg. H. RINGSELLE; Det. H. DAHLSTEDT' (Ex. herb. K. JOHANSSON) in S.

H. chiridotum JOHANSS. (1920 p. 72).

Lectotype selected here: 'Hab. Dalsland. Edsleskog, Bräcke ängar, löväng; 12/6 1918. leg. GUNNAR SAMUELSSON' (Ex. JOHANSSON & SAMUELSSON, Hierac. scand. exs. no. 16; with emended printed label) in S.

H. chloromaurum JOHANSS. (1905 p. 104).

Lectotype selected here: 'Östergötland: Åby vid landsvägen till Graversfors; 18/6 1900; Leg. K. JOHANSSON' in S.

H. complexum JOHANSS. (1925 p. 486).

Lectotype selected here: 'Sdm Östertälje, Skärfsta, 6. 1896; Leg. O. HAGSTRÖM; Det. K. JOH. 1924' in S.

H. constringens NORRL. (1889 p. 111) **var. *malmeanum*** JOHANSS. (1925 p. 487, '*Malmeanum*').

Lectotype selected here: 'Upl. Bo: Rensätra, 17/7 1925; K. JOHANSSON' in S.

Note: This variety differs from the typical form of the species by very finely denticulate leaves and more acute phyllaries with almost no stellate hairs and is thus rather distinct and may merit specific rank. However, it is only known from two nearby localities and its relation to the very widespread and rather variable *H. constringens* is thus difficult to determine.

H. cuprimontanum Dahlst. & Johanss., in Johanss. (1902 p. 55).

Lectotype selected here: 'Suecia: Vestmanland in colle lapidoso prati silvatici ad Kopparberg par. Ljusnarsberg, 1/7 1898; leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. XII: 67) in S.

H. dalicum Johanss. (1900 p. 49).

Lectotype selected here: 'Dalsl. Dalskogs station 12/7 1899; leg. K. Johansson.' in S.

H. denigrans (Dahlst.) Johanss. (1927 p. 64).

Bas.: *H. tenebricosum* ssp. *denigrans* Dahlst. (1893a p. 151).

Lectotype selected here: 'Hab. inter Eskebäck et sacellum paroeciæ Fagerhult Smolandiae. 14/7 1883. Legi K. J. Lönnroth' in S.

H. diaphanoides Lindeb. (1882 p. 11).

Lectotype selected here: 'Suec. Smol. et. OGoth. G.E. Hyltén-Cavallius et K. F. Dusén' (Ex. Lindeberg, Hier. Scand. exsiccata 123), the left specimen, preserved separately in LD.

Note: The specimen mounted to the right of the lectotype belongs to a rather different species (possibly *H. chlorodes* (Dahlst.) Dahlst. but the material is not convincing) and differs from the diagnoses of *H. diaphanoides,* as well as from the description on the label accompanying the exsiccate, in having numerous simple hairs in the synflorescence. However, the lectotype fits well both the original diagnoses and the current usage of the name.

H. diaphanoides Lindeb. (1882 p. 11) **var. *atricapillum*** Lönnr. ex Dahlst. (1894a p. 167).

Lectotype selected here: 'Småland, Fagerhults socken vid vägen från gästgifvaregården till Eskebäck nära gamla badhuset bland gräs och buskar. 14/7 1883. K. J. Lönnroth' in S.

Note: This is a very peculiar plant only known from the type gathering (consisting of 5 specimens). It has broad, sessile and almost subamplexicaul cauline leaves, an extremely long and dense indument of glandular hairs with few intermixed blackish simple hairs in the synflorescence and an indistinct band of stellate hairs along the margins of the outer phyllaries. It is apparently not closely related to *H. diaphanoides* Lindeb. and can not be regarded as a variety of that species. It may be closely related to *H. ornatum* (Dahlst.) Dahlst. but is probably not conspecific. However, since this plant has only been found once more than a century ago, there is no urgent practical need to resolve its taxonomic position and rank. There are several later gatherings from different parts of Sweden which have been preliminarily referred to this taxon by both Dahlstedt and later authors but most of these are much more similar to the type of *H. diaphanoides* and are best regarded as occasional aberrant forms of that species and apparently none of them belongs to var. *atricapillum* as lectotypified here.

H. epicrocifolium Johanss. (1900 p. 46).

Lectotype selected here: 'Dalsland: Gunnarsnäs s:n, Rostock, i granskog söderut; 19/ 7 1899; leg. K. Johansson' in S.

H. ethologum (Johanss. ex Dahlst.) Johanss. & Sam. (1920 p. 12).

Bas.: *H. nigricanticeps* var. *ethologum* Johanss. ex Dahlst. ['*aethologum*'] (1899, exs. XI: 42).

Lectotype selected here: '[description] ... Suecia: Vestmanland ad Fisklösen par. Grythytte solo humidiusculo prati silvatici, 4/7 1897, leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. XI: 42) in S.

H. ferrimontanum (Johanss.) ex Johanss., in Johanss. & Sam. (1920 p. 36).

Bas.: *H. subramosum* var. *ferrimontanum* Johanss. (1900 p. 57).

Lectotype selected here: 'Vsm. Grythytte s:n, Lönnhöjden; 3/7 1898; leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. XII: 77; with emended printed label with the date given as 10/7 1897) in S.

H. glandulosissimum (Dahlst.) Brenner (1895 p. 25).

Bas.: *H. serratifrons* ssp. *glandulosissimum* Dahlst. (1893a p. 91).

Lectotype selected here: 'Srm. St. Malm, Sörgölet. d. 23/6 1890: Leg. G O. An..; Det. H. Dt. 91' in S.

H. gracilifrons Johanss. (1927 p. 21).

Nom. et stat. nov. pro *H. sarcophyllum* ssp. *gracilipes* Johanss. ex Dahlst. (1893a p. 169).

Lectotype selected here: 'Par. Rogberga, Knifshult; 18/6 1893; leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. I: 99; with emended printed label giving the date as 2/ 7 1891) in S.

H. gunnarii (Zahn) Johanss. (1927 p. 22, '*Gunnarii*').

Bas.: *H. murorum* ssp. *gunnarii* Zahn (1921 p. 528), nom. et stat. nov. pro *H. ovatifrons* Johanss., in Johanss. & Sam. (1920 p. 19), non Dahlst. ex Noto (1910).

Lectotype selected here: 'Vsm. Ljusnarsberg, Fjällberget 26/6 1919; leg. K. Stéenhoff' (Ex. Johansson & Samuelsson, Hier. scand. exsiccata no. 30; with emended printed label) in S.

H. haboënse (Johanss. & Sam.) Johanss. & Sam. (1923-26 exs. 308).

Bas.: *H. sparsidens* var. *haboënse* Johanss. & Sam. (1924 p. 141).

Lectotype selected here: 'Vg. Habo, Dommeberget 27/6 1908; leg. Gunnar Samuelsson' in S.

H. hians Johanss. & Sam. (1924 p. 137).

Lectotype selected here: 'Närke. Asker: Storkbäck; 8/6 1921; K. Johansson' (Ex. Johansson & Samuelsson, Hierac. scand. exsiccata no. 157; with emended printed label) in S.

Note: This plant is only known from a few specimens which are very similar to the earlier described and more widespread *H. subcrassum* (Almq.) Brenner and they are most probably conspecific.

H. incurrens Saelan ex Norrl. (1889 p. 150) **var. *oletatum*** Johanss. & Sam. (1920 p. 37).

Lectotype selected here: 'Västmanland: Ljusnarsberg. Sunds Näset, björkbacke; 25/6 1910; leg. Gunnar Samuelsson' in S.

Note: This taxon differs from the typical form of *H. incurrens* (mainly known from Finland) by e.g. spotted–marmorated leaves and shorter indument in the synflorescence. It should be regarded as a species of its own right and the formal recombination will be made by me elsewhere (msc.).

H. integratifrons Johanss. (1900 p. 24).

Lectotype selected here: 'Vsm. Grythytte s:n, vid ett torp norr om Torrvarpsund; 25/6 1898; leg. K. Johansson'(Ex. Dahlstedt, Herb. Hierac. Scand. XII: 57; with emended printed label) in S.

H. interveniens (Dahlst.) Dahlst. (1893b, exs. IV: 41).

Bas.: *H. murorum* ssp. *interveniens* Dahlst. (1891a, exs. IV: 84).

Lectotype selected here: ' ... [description] Suecia: Vestmanland prope Charlottenborg ad Kungsör locis subumbrosis, 17/7 1890. Leg. C. O. v. Porat.'(Ex. Dahlstedt, Hierac. Exsiccata IV: 84) in S.

H. itharophyton Johanss. (1900 p. 8).

Lectotype selected here: 'Suecia: Vestmanland in prato solo calcareo orientem versus ad Skatviken par. Grythytte, 27/6 1898; leg. K. Johansson'(Ex. Dahlstedt, Herb. Hierac. Scand. XII: 41) in S.

H. johanssonii (DAHLST.) JOHANSS. & SAM. (1923-26 exs. 162).

Bas.: *H. sparsidens* ssp. *johanssonii* DAHLST. (1893a p. 146; '*Johanssonii*').

Lectotype selected here: 'Sml.: Rogberga s:n, Vismålen på en mossbeväxt klippa i barrskog. 14/7 1888; K. JOHANSSON' in S.

H. juelii (DAHLST.) JOHANSS. & SAM. (1923-26 exs. 163).

Bas.: *H. silvaticum* ssp. *juelii* DAHLST. (1893a p. 57; '*Juelii*').

Lectotype selected here: 'Stockh.: Uggleviken; 20/6 1886; O. JUEL' in S.

H. koepingense JOHANSS. (1929 p. 334).

Lectotype selected here: 'Västmanl. Köping: Johannesdal 16/7 1928, K. JOHANSSON' (Ex. JOHANSSON & SAMUELSSON, Hierac. scand. exsiccata no. 477; with emended printed label) in S.

H. lampocranum JOHANSS. & SAM. (1920 p. 38).

Lectotype selected here: 'Vsm: Skinnskatteberg, norrut 1/7 1918; leg. K. JOHANSSON' in S.

H. larssonii JOHANSS. & SAM., in JOHANSS. (1920 p. 80).

Lectotype selected here: 'Dsl. Ånimskog: Lilla Bräcke på Murgröneberget 14/6 1918; leg. GUNNAR SAMUELSSON' (EX. JOHANSSON & SAMUELSSON, Hierac. scand. exs. no. 36; with emended printed label) in S.

H. lepidiceps (DAHLST.) DAHLST. (1900 exs. XII: 60) **var. *vietulifolium*** JOHANSS. & SAM. (1924 p. 147).

Lectotype selected here: 'Södml. Länna bruk. 10/7 1899; EUGENÈ KÖHLER' in S. Mounted on this sheath is also a label with the name *vietulifolium* and a description of it in JOHANSSON's hand.

Note: This is a dubious taxon; as pointed out by its author typical forms of it have longer and more pointed leaves and narrower phyllaries with more conspicuous stellate hairs and a distinct apical coma as compared to the typical race of the species. In addition, this variety often has violescent leaves and more numerous simple hairs in the synflorescence. However, many specimens exhibit only some of these characters and even the original material (from two different sites and collected during several years) is variable in many respects making it difficult to evaluate this variety. The lectotype closely fits the diagnoses in having narrow, pointed and comate phyllaries with conspicuous stellate hairs and it is mounted together with a hand-written description of JOHANSSON, but it lacks the violescent leaves and hairy phyllaries found in many other specimens referred to this variety (including some collected at the same locality).

H. lepidiforme (Stenstr.) Johanss. (1927 p. 72).

Bas.: *H. murorum* ssp. *lepidiforme* Stenstr. (1889 p. 47).

Lectotype selected here: 'Dalsl.: Steneby s:n, Baldersnäs på ett litet berg. 25/7 1888, K. O. E. Stenström' in S.

H. longimanum (Norrl.) Dahlst. (1902b, exs. II:30) **f. *pectinatulum*** (Almq. ex Dahlst.) Johanss. (1927 p. 74).

Bas.: *H. caesium* ssp. *pectinatulum* Almq. ex Dahlst. (1894a p. 43).

Lectotype selected here: 'Suecia: Stockholm in silvaticis umbrosis ad Djurgården, 9/7 1890. Legi ipse' (Ex. Dahlstedt, Hierac. Exsiccata IV: 67) in S.

Note: This form differs from the typical form of the variable species *H. longimanum* by taller growth and more deeply cut leaves with numerous leaf-like appendages on the petiole. In particular the cauline leaves are broadly triangular in outline and deeply pinnatisect with large basal teeth making them ± truncate - hastate at base. Johansson (1927) considered the taxon as merely a modification of the species in shaded habitats but since then many more specimens have been collected and it appaers to me as if this morphology has a genetic background and may be worthy of taxonomic recognition. However, cultivation experiments are needed to get a definite answer to this question.

H. maurocephalum Folin (1936 p. 10).

Lectotype selected here: 'Dalsland Edsleskogs sn, Högheden, öppen ängsbacke, 22/6 [?] 1909, leg. P. A. Larsson; det. H. Dahlstedt' in S.

H. mediiforme (Malme) Dahlst. (1896 exs. X:27).

Bas.: *H. silvaticum* ssp. *mediiforme* Malme [Andersson] (1890 p. 91).

Lectotype selected here: 'Srm. St. Malm, Sörgölsstugan. d. 9/7 1890; Leg. G. O. A:n.' in S.

H. megalotrachelum Johanss. (1925 p. 486).

Lectotype selected here: 'Srml. Nacka: Nyckelviken 18/6 1924; K. Johansson' (Ex herb. K. Johansson) in S.

H. membrosum Johanss. & Sam. (1924 p. 138).

Lectotype selected here: 'Upl. Lidingö: nära Katrinelund 4/7 1923; K. Johansson' (Ex herb. K. Johansson) in S.

H. meticeps (Almq. ex Dahlst.) Dahlst. (1892b exs. I: 41) **var. *pseudometiceps***

DAHLST. (1894a p. 250).

Lectotype selected here: 'Suecia: Småland in betulo macro ad Bordsjö par. Askeryd 26&6 1884, legi ipse.' (Ex. DAHLSTEDT, Herb. Hierac. Scand. V: 26a) in S.

Note: This taxon is only a modification of the species without taxonomic value (cf. JOHANSSON 1927) and in my opinion the 'species' *H. meticeps* is in turn a taxonomic synonym for the earlier described *H. canipes* (ALMQ. ex STENSTR.) DAHLST.

H. molybdinoides DAHLST. (1921 p. 10).

Lectotype selected here: 'Söderml. Strengnäs vid vägen Kilen – Lunda. 28/6 1898; EUGENÉ KÖHLER; Det. DAHLST.' in S.

H. munduliforme (DAHLST.) DAHLST. (1900 exs. XIII: 37).

Bas.: *H. integratum* ssp. *munduliforme* DAHLST. (1893a p. 122).

Lectotype selected here: 'Upland, Tibble, Hålsjön 1886; S. ALMQUIST; (det. H. DAHLSTEDT 1890)' in S.

Note: This combination has long been considered a taxonomic synonym of *H. patale* NORRL. (1889).

H. murorum* ssp. *nigroglanduliferum C.G. WESTERL. (1890 p. 114).

Lectotype selected here: 'Ronneby, Helsobrunnen. 20/6 1890. Leg. C. G. WESTERLUND' in S.

Note: The lectotype clearly belongs to *H. pseudodiaphanum* (DAHLST.) JOHANSS. and the name '*nigroglanduliferum*' has never been in wider use.

H. nastophyllum JOHANSS. (1900 p. 29).

Lectotype selected here: 'Vsm. Grythytte s:n, Västgötetorp; 29/6 1898; K. JOHANSSON' (Ex. DAHLSTEDT, Herb. Hierac. Sacnd. XII: 59; with emended printed label) in S.

H. neritodon JOHANSS. & SAM. (1920 p. 16).

Lectotype selected here: 'Västmanland: Ljusnarsberg, Brattberg (björkbacke); 23/6 1910; leg. GUNNAR SAMUELSSON' (Ex. JOHANSSON & SAMUELSSON, Hierac. scand. exsiccata no. 46; with emended printed label) in S.

H. nigroglandulosum LÖNNR. (1882 p. 72), non VUK. (1869),

Lectotype selected here: 'Hab. in pascuis prope Flenvik paroeciae Hangvar Gotlandiae 5/8 1853 Legi. K. J. LÖNNROTH' in S.

Note: The lectotype consists of badly developed specimens of the earlier described *H. pellucidum* LAEST., and *H. nigroglandulosum* has indeed long been regarded as a taxonomic synonym of that species.

H. opeatodontum (STENSTR.) DAHLST. (1895 exs. IX: 39) **var. *ocriodes*** (JOHANSS.) JOHANSS., in JOHANSS. & SAM. (1923-26 exs. 317)

Bas.: *H. ocriodes* JOHANSS. (1900 p. 10).

Lectotype selected here: 'Vsm. Grythytte s:n, Elfvestorps bruk; 2/7 1898; leg. K. JOHANSSON' (Ex. DAHLST. Herb. Hierac. Scand. XII: 50; with emended printed label) in S.

Note: This variety is not much different from the type of the species and does in my opinion not merit taxonomic recognition.

H. paeminosum JOHANSS. & SAM. (1920 p. 44).

Lectotype selected here: 'Västmanland: Ljusnarsberg, Brattberg, björkbacke; 16/7 1909. leg. GUNNAR SAMUELSSON' in S.

H. palmeri DAHLST. ex JOHANSS. & SAM. (1924 p. 138, '*Palmeri*').

Lectotype selected here: 'Boh. Sämstad, löväng vid Gullmarsfjorden 4/6 1908; leg. GUNNAR SAMUELSSON' (Ex. JOHANSSON & SAMUELSSON, Hierac. scand. exsiccata no. 183; with emended printed label) in S.

Note: This combination is a taxonomic synonym of the earlier described *H. acudentulum* OMANG as was recognised by JOHANSSON already in 1926 (as evident from determination strips in S).

H. paramaurum JOHANSS. (1900 p. 31).

Lectotype selected here: 'Vsm. Grythytte s:n, Västgötetorp; 29/6 1898; leg. K. JOHANSSON' (Ex. DAHLSTEDT, Herb. Hierac. Scand. XII: 56; with emended printed label) in S.

H. pectinatum DAHLST. (1921 p. 12).

Lectotype selected here: 'Uppl.: Väddö, Ortalund; 27.6.1914; Leg. G. A. RINGSELLE; Det. H. DAHLSTEDT; n. sp. originalex' in S.

H. perlaxum JOHANSS. (1902 p. 31) **var. *obtusidens*** (DAHLST. ex JOHANSS. & SAM.) JOHANSS. & SAM. (1923 p. 63).

Bas.: *H. obtusidens* DAHLST. ex JOHANSS. & SAM. (1920 p. 18), non DAHLST. ex NOTO (1910).

Lectotype selected here: 'Västmanland: Ljusnarsberg, Brattbergshäll (björkbacke) 2/7 1910; leg. GUNNAR SAMUELSSON' in S.

H. phaeopsis DAHLST. ex JOHANSS. & SAM. (1920 p. 46).

Lectotype selected here: 'Suecia: Vestmanland solo caespitoso humidiusculo in prato prope sacellum par. Grythytte, 13/7 1897, leg. K. JOHANSSON' (EX. DAHLSTEDT, Herb. Hierac. Scand. XI: 81) in S.

H. phrygionium JOHANSS. (1905 p. 118).

Lectotype selected here: 'Sm. Hjelmseryds s:n, N. Hetseryd; 27/6 1893; leg. K. JOHANSSON' in S.

H. plantaginifolium JOHANSS & SAM. (1920 p. 21).

Lectotype selected here: 'Västmanland: Västanfors, Fagersta i parken; 16/6 1917; leg. GUNNAR SAMUELSSON' (EX. JOHANSSON & SAMUELSSON, Hierac. scand. exsiccata no. 52; with emended printed label) in S.

H. plumuligerum (DAHLST.) JOHANSS. (1927 p. 37).

Bas.: *H.* [*sarcophyllum*] ssp. *plumuligerum* DAHLST. (1893a p. 178).

Lectotype selected here: 'Suecia: Dalsland ad Rostock par. Gunnarsnäs loco aperto aprico, 3/6 1890, leg. A. FRYXELL' (EX. DAHLSTEDT, Herb. Hierac. Scand. II: 1) in S.

H. plumuligerum* var. *lipadenium JOHANSS. (1927 p. 37).

Lectotype selected here: 'Bohuslän Tegneby sn. Lyrön, berg. 6/6 1926. RAGNAR OHLSÉN' in S.

Note: This combination is a taxonomic synonym of *H. calliglaucum* OMANG.

H. polypelium JOHANSS. & SAM. (1924 p. 139).

Lectotype selected here: 'Nrk. Kvistbro: Svartå bruk (björkäng) 15/6 1921; K. JOHANSSON' (EX. JOHANSSON & SAMUELSSON, Hierac. scand. exsiccata no. 195; with emended printed label) in S.

H. porrigentiforme DAHLST., in JOHANSS. (1902 p. 77).

Lectotype selected here: 'Suecia: Södermanland ad Jakobsberg par. Brännkyrka loco humidiusculo graminoso in prato silvatico, 5/7 1890, legi ipse.' (EX. DAHLSTEDT, Herb. Hierac. Scand. II: 74) in S.

H. parvifrons JOHANSS. & SAM. (1924 p. 130).

Lectotype selected here: 'Upl. Singö: Tranvik 4/7 1922; leg. G.A. RINGSELLE' (EX. JOHANSSON & SAMUELSSON, Hierac. scand. exsiccata no. 197; with emended printed label) in S.

H. prolinguatum JOHANSS. & SAM. (1924 p. 152).

Lectotype selected here: 'Upl.: Värmdön, Löfberga, 2/7 1906; Leg. G. O. MALME; determ. K. JOH. 1923' in S.

H. prolixum NORRL. (1888 p. 94) **f. *floccosiceps*** JOHANSS. (1929 p. 332).

Lectotype selected here: 'Uppl. Ryds s:n, Ullna, stenig björkbacke; 20/6 1901; Leg. K. JOHANSSON' in S.

Note: This form differs from the typical form of the species only by somewhat more abundant stellate tomentum on the phyllaries and it is probably merely a modification of the species and does not merit taxonomic recognition.

H. remanens (MALME) DAHLST. (1900 exs. XII: 47).

Bas.: *H. silvaticum* ssp. *remanens* MALME ([ANDERSSON] 1891 p. 179)

Lectotype selected here: 'Srml., St. Malm, Markstugan; 6/7 1888; G.A:N MALME' in S.

H. remanentiforme (DAHLST.) JOHANSS. (1927 p. 42).

Bas.: *H.* [*serratifrons*] ssp. *remanentiforme* DAHLST. (1893a p. 107).

Lectotype selected here: '*H. distinctum* STENSTR.; Vg.: Kinnekulle, Mörkeklef 9.7.1890; A. FRYXELL' in S. On the sheet there is also a label '*H. remanentiforme* DAHLST. Bidr. II (1893); Determ. K. JOH. 1925'.

Note: This species is only known from the type collection preserved on two sheets in S. However, the origin and status of this gathering is rather confused. According to the protologue, the only known gathering was done by A. FRYXELL at Mörkeklef on Mt. Hunneberg. However, the only extant material is accompanied with labels indicating that 'Mörkeklef' is instead situated on Mt. Kinnekulle. These labels are written in DAHLSTEDT's hand (the original labels are missing). Thus, it is clear that DAHLSTEDT has seen these specimens, they fit the description in the protologue very well and there are no other known gatherings by FRYXELL from 'Mörkeklef'. Still, however, the labels written by DAHLSTEDT identify them as belonging to a rather different species, i.e. *H. distinctum* (STENSTR.) DAHLST., and it appears as if it was first in 1925 that JOHANSSON put them in connection with the protologue of *H. remanentiforme*. It is difficult to tell for sure how this complexity has arisen. However, the lectotype specimens are the only extant material of this species and beyond doubt they belong to the same gathering as the ones mentioned in the protologue and are thus available as lectotypes even though it appears likely that it was other duplicates that DAHLSTEDT had at hand when writing the description, that these original specimens have vanished and that the now extant material has been added to S later when DAHLSTEDT had forgotten their status.

H. ringsellei Dahlst. (1921 p. 14, '*Ringsellei*').

Lectotype selected here: 'Uppl.: Bladåkers s:n, Bennebol, ofvan kolmilan utmed Slottsvägen; 13/6 1911; G.A. Ringselle' in S.

H. sagittatum (Lindeb.) Norrl. (1888 p. 89) **ssp. *subunctiusculum*** Dahlst. (1893a p. 197).

Lectotype selected here: 'Sml: Öggestorp s:n, Torp. 5/7 1887; K. Johansson' in S.

Note: This combination is a taxonomic synonym of *H. gracilifrons* Johanss.

H. saurotum Johanss. (1900 p. 52).

Lectotype selected here: 'Vsm. Norberg, ängsbit nära Klackbergs grufva; 30/7 1898; leg. K. Johansson' in S.

H. schlyteri (Lindeb. ex Dahlst.) Johanss. (1902 p. 119).

Bas.: *H. subramosum* ssp. *schlyteri* Lindeb. ex Dahlst. (1894a p. 110 nota).

Lectotype selected here: 'Upl.: W. Löfsta s:n, Molneboparken; 25/7 1888. C. A. E. Lénström' (with the later addition of a label in Dahlstedt's hand with the same text) in S.

H. scioides (Johanss.) Johanss. (1902 p. 21).

Bas.: *H. sparsidens* var. *scioides* Johanss. (1900 p. 34).

Lectotype selected here: 'Suecia: Vestmanland ad margines agri loco aprico ad Grythyttehed par. Grythytte, 3/7 1898, leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. XII: 60) in S.

H. semicanipes Dahlst. (1921 p. 14).

Lectotype selected here: 'Dalsland Edsleskogs s:n, Bräcke ängar, 3.VII.1908. Leg. P.A. Larsson' in S.

H. siliginellum (Dahlst.) Johanss. & Sam. (1923-26, exs. 209).

Bas.: *H. silvaticum* ssp. *siliginellum* Dahlst., in Porat (1894 p. 40).

Lectotype selected here: 'Suecia: Vestmanland ad "Sandskogstorpen"prope Kungsör, 8/7 1890, leg. C.O. von Porat' (Ex. Dahlstedt, Herb. Hierac. Scand. I: 23) in S.

H. silvaticum* ssp. *ptychophyllum Dahlst. (1892a p. 156).

Lectotype selected here: 'Skåne; Oppmanna, Bokenäset; 29/6 1890; G. O. A:son Malme' in S.

Note: This combination is since long recognized as a taxonomic synomym of *H. hjeltii* Norrl.

H. sparsidens* ssp. *subcinerellum Johanss. ex Dahlst. (1893a p. 144).

Lectotype selected here: 'Suecia: Småland paroeciae Forserum ad Lättarp in pratis umbrosis, 4/7 1891, leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. I: 72) in S.

Note: This combination is a taxonomic synonym of *H. informe* (Stenstr.) Dahlst.

H. steenhoffii Johanss. & Sam. (1920 p. 23).

Lectotype selected here: 'Västmanland: Ljusnarsbärgs sn., Dammröjningen; Dat. 10.VII.16; Insamlare: K. Stéenhoff. Stockholm' (Ex. Johansson & Samuelsson, Hierac. scand. exsiccata no. 59; with emended printed label with the locality erroneously given as "Fjällberget" and the date as "25/6 1919") in S.

H. stibeophyllum Dahlst. ex Johanss. & Sam. (1924 p. 154).

Lectotype selected here: 'Hall. Ullared: Fridhemsberg 25/6 1920' (Ex. Johansson & Samuelsson, Hierac. scand. exsiccata no. 290; with emended printed label) in S.

H. subatronitens (Dahlst.) Dahlst. (1908 exs. XXIII: 56) **var. *conturbans*** Johanss. & Sam. (1924 p. 154).

Lectotype selected here: 'Smål. Femsjö: Ekornahult 18/7 1922; leg. K. Johansson' (Ex. Johansson & Samuelsson, Hierac. scand. exsiccata no. 293; with emended printed label) in S.

Note: This taxon is rather different from *H. subatronitens* s. str. as circumscribed by later authors and it is probably a species in its own right. However, since the original material of *H. subatronitens* this far has been sought for in vain it has yet not been possible to fix the usage of this name and as long as this has not been done the status of '*conturbans*' will remain uncertain.

H. subirriguum (Dahlst.) Dahlst. (1899, exs. XI: 60).

Bas.: *H. murorum* ssp. *subirriguum* Dahlst., in Porat (1894 p. 42).

Lectotype selected here: 'Suecia: Vestmanland ad Arboga in silva loco aperto, 20/6 1892. leg. C. O. von Porat' (Ex. Dahlstedt, Herb. Hierac. Scand. IV: 39) in S.

H. subobscurans (Dahlst.) Dahlst. ex Johanss. (1927 p. 48).

Bas.: *H. serratifrons* ssp. *subobscurans* Dahlst., in Porat (1894 p. 41).

Lectotype selected here: 'Suecia: Vestmanland in silvaticis ad Sandskogshagen prope Kungsör, 28/6 1891, leg. C.O. von Porat' (Ex. Dahlstedt, Herb. Hierac. Scand. I: 40) in S.

Note: In my opinion the type belongs to the earlier described *H. sudermannicum* Dahlst. & Malme, but much of the material referred to *H. subobscurans* by later authors are probably better referred to *H. stenstroemii* Dahlst.

H. subterscissum Johanss. (1900 p. 35).

Lectotype selected here: 'Suecia: Vestmanland loco humidiusculo in prato silvatico ad Torrvarpsund par. Grythytte, 25/6 1898, leg. K. Johansson' (Ex. Dahlstedt, Herb. Hierac. Scand. XII: 49) in S.

H. subtriangulare (Stenstr.) Dahlst. (1892b exs. I: 26).

Bas.: *H. silvaticum* ssp. *subtriangulare* Stenstr. (1889 p. 17).

Lectotype selected here: 'Dlsl: Dalskogs s:n, Heden; 15/6 1889; A. Fryxell' in S.

Note: This taxon is very similar to *H. triangulare* (Almq.) Norrl. and they are best treated as conspecific.

H. sudermannicum Dahlst. & Malme, in Malme ([Andersson], 1896 p. 163).

Lectotype selected here: 'Srm. St. Malm, Brännkärr. d. 26/6 1890. Leg. G. O. A:n Malme.' in S.

H. tanaodeirum Johanss., in Arwidsson (1928 p. 195).

Lectotype selected here: 'Söderml. Länna bruk. 29/6 1900. Eugenie Köhler; determ. K. Joh. 1927' in S.

H. toerense Johanss. (1925 p. 487).

Lectotype selected here: 'Srm. Salem: Rönninge, i barrskog 30/7 1927. K. Johansson' in S.

H. turbiniceps Dahlst. (1894a p. 97).

Lectotype selected here: 'Suecia: Upland ad Dannemora in collibus et scopulis locis siccioribus in prato silvatico, 18/7 1890, legi ipse.' (Ex. Dahlstedt, Herb. Hierac. Scand. II: 56) in S.

H. urticaefrons (Dahlst.) Dahlst. (1900 exs. XII: 46).

Bas.: *H. silvaticum* ssp. *urticaefrons* Dahlst. (1891b p. 35).

Lectotype selected here: 'Norge: Kristiania, Ormøen; 7. 1885; H. Dahlstedt' in S.

H. venetifolium Johanss. & Sam. (1920 p. 28).

Lectotype selected here: 'Dalarne: Grängesbärg; Dat. 5. VII.15; Insamlare K. Stéenhoff. Stockholm; det. K. Joh. & G. Sam. 1917' in S.

H. villattingense Johanss. (1914 p. 82).

Lectotype selected here: 'Sdm. Mellösa s:n, Nytorp; 19/6 1899; leg. K. Johansson.' (Ex.

JOHANSSON, Hieracia Rarioria Exsiccata no. 100; with emended printed label) in S.

H. violascens **var. *badioviolaceum*** JOHANSS. ex DAHLST. (1894a p. 139).

Lectotype selected here: 'Smål. Forserums s:n, Lättarp (torr löväng) 19/7 1888. K. JOHANSSON' in S.

Note: This combination is a taxonomic synonym of *H. pubicuspis* JOHANSS.

H. xystophorum JOHANSS. & SAM. (1920 p. 30)..

Lectotype selected here: 'Vsm: Ljusnarstorps sn; Fjällberget; Dat. 26.VI.19; Insamlare K. STÉENHOFF' in S.

Note: The parish "Ljusnarstorp" given on the label does not exist and is certainly an error for "Ljusnarsberg" which is the site mentioned in the protologue.

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